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1985 SURVEY OF THE CHECK COLLECTION SYSTEM

by

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Bank Administration Institute

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CONTENTS

LIST OF FIGURES v

LIST OF TABLES ix

FOREWORD xiii

SURVEY HISTORY 1

1985 SURVEY RESPONDENTS 2

1985 SURVEY HIGHLIGHTS 3

THE MEASURES OF SYSTEM PERFORMANCE 5
- Reader/Sorter Reject Rates 6
- Transit Returns 12
- Free and Lost Items 15
- Missent, Miscoded, and Listing Error Items 16
- Exception and Return Items 17
- A Dollar Analysis of Return and Exception Items 19
- Outstanding Exception Items 19
- A Comparison of Balancing Policy and Experience 25
- Transit Holdover 25

BANK LABOR PRODUCTIVITY MEASUREMENT 27
- Labor Intensiveness 28
- Labor Distribution 30
- Data Control — Balancing and Correction 30
- Encoding Operations 31
- Check Receiving Operations 32
- Reader/Sorter Operations 33
- Cash Letter Makeup and Microfilming 34
- On-Us Processing - Labor Productivity 36
- Bulk Filing Labor Productivity 36
- Exception and Return Item Processing 38
- Reject Processing Productivity 40
- Labor Productivity Summary 42

PERFORMANCE MEASUREMENT STATISTICS 43
- Reject-Reentry 43
- Automated Reject Processing 45
- Miscellaneous Statistics 47

CHECK TRUNCATION AND ELECTRONIC CHECK PRESENTMENT 51

APPENDICES

- Appendix A: 1985 Banker Comments 53
- Appendix B: 1985 Survey Tables 1 Through 62 63
- Appendix C: 1985 Survey Questionnaire 139

LIST OF FIGURES

1 Participating Banks 2

2 Reject Rate 6

3 Distribution of the Reject Rate 7

4 Types of Rejects 8

5 Transit Number Rejects 9

6 Account Number Rejects 9

7 Dollar Amount Rejects 10

8 Serial Number Rejects 10

9 Trancode Rejects 11

10 Other Rejects 11

11 Transit Returns (Rate per 100,000 Items Sent) 12

12 Distribution of Transit Return Rate (Rate per 100,000 Items Sent) 13

13 Average Dollar Value of Transit Return Item 13

14 Distribution of Transit Return Dollars (Rate per 100,000 Sent) 14

15 Free and Lost Items Discovered (Rate per 100,000 Items Received) 15

16 Exceptions, Returns, and Rejects (to Total Items Processed) 18

17 Distribution of Exceptions, Returns, and Reject Rate 18

18 Distribution of Exception Items Outstanding (Percent of Dollars) 19

19 Distribution of Exception Items Outstanding (Percent of Items) 20

20 Percent of Outstanding Exception Items (Percent of Dollars — 1 Month Outstanding) 22

21 Percent of Outstanding Exception Items (Percent of Dollars — 1 - 2 Months Outstanding) 22

22 Percent of Outstanding Exception Items (Percent of Dollars — Over 2 Months Outstanding) 23

23 Percent of Outstanding Exception Items (Percent of Items — 1 Month Outstanding) 23

24 Percent of Outstanding Exception Items (Percent of Items — 1 - 2 Months Outstanding) 24

25 Percent of Outstanding Exception Items (Percent of Items — Over 2 Months Outstanding) 24

26 Transit Holdover Rate 26

27 Average Dollar Value of Holdover Item 26

28 Overall Labor Productivity 28

29 Distribution of Overall Labor Productivity 28

30 Distribution of Overall Labor Productivity by Tasks 30

31 Encoding Labor Productivity 31

32 Check-Receiving Productivity (Average) 32

33 Check-Receiving Productivity (Median) 32

34 Reader/Sorter Labor Productivity 33

35 Distribution of Reader/Sorter Productivity 34

36 Microfilming Labor Productivity 35

37 Bulk Filing Labor Productivity 36

38 Distribution of Bulk Filing Productivity 37

39 Exception and Return Item Productivity 38

40 Return Item Productivity 39

41 Exception Item Productivity 39

42 Reject Processing Productivity 40

43 Distribution of Reject Processing Productivity 41

44 Reject Rate (After High-Speed Reject Reentry) 43

45 Reject Reentry Productivity 44

46 Distribution of Reject Reentry Productivity 44

47 Automated Reject Processing 45

48 Manual Reject Processing 46

49 Distribution of Automated Reject Processing Rate 46

50 Percent of Incoming Items Encoded 47

51 Supervisory Time to Clerical Man-Hours (All Functions) 48

52 Supervisory Time to Clerical Man-Hours (Exception Item Processing) 48

53 Supervisory Time to Clerical Man-Hours (Microfilming) 49

54 Supervisory Time to Clerical Man-Hours (Return Items) 49

55 Supervisory Time to Clerical Man-Hours (Encoding) 50

56 Supervisory Time to Clerical Man-Hours (Cash Letter Makeup) 50

57 Check Safekeeping at Payor Bank (In Thousands) 51

58 Electronic Check Presentment 52

LIST OF TABLES

1 Survey Respondents by Geographic Area 64

2. Percent of Rejects on Reader/Sorter Equipment by Area 65

3. Distribution of the Reject Rate 66

4. Percent of First-Pass Rejects by Type and by Area 67

5. Transit Returns by Area 73

6. Distribution of the Transit Return Rate 74

7. Transit Return Dollar Value by Rate of Transit Returns 75

8. Free and Lost Items Discovered by Area 76

9. Free Items Discovered by Area 77

10. Lost Items Discovered by Area 78

11. Distribution of the Free and Lost Item Rate 79

12. Missent, Miscoded, and Listing Error Items Discovered by Area 80

13. Missent Items Discovered by Area 81

14. Miscoded Items Discovered by Area 82

15. Listing Error Items Discovered by Area 83

16. Distribution of Missent, Miscoded, and Listing Error Items Rate 84

17. Exception and Return Items Discovered by Area 85

18. Distribution of the Exception and Return Items Rate 86

19. Percent of Exceptions, Returns, and Rejects to the Number of Items Processed 87

20. Distribution of Exceptions, Returns, and Reject Rate 88

21. Return and Exception Item Dollar Analysis by Area 89

22. Age Distribution of Outstanding Exception Items 91

23. Age Distribution of Outstanding Exception Items by the Microfilming Method 93

24. A Comparison of Balancing Policy and Experience 95

25. Transit Holdover by Area 96

26. Distribution of the Transit Holdover Rate 97

27. Overall Labor Productivity 98

28. Overall Labor Productivity by Area 99

29. Distribution of Labor by Overall Labor Productivity 100

30. Balancing and Correction Labor Productivity 101

31. Encoding Labor Productivity 102

32. Encoding Labor Productivity for the Single-Pocket Machine 103

33. Encoding Labor Productivity for the Multipocket Machine 104

34. Items Encoded per Man-Hour by Percent of Pre-encoded Items 105

35. Check-Receiving Productivity 106

36. Reader/Sorter Labor Productivity 107

37. Cash Letter Makeup and Microfilming Labor Productivity 108

38. Cash Letter Makeup Labor Productivity 109

39. Microfilming Labor Productivity 110

40. On-Us Processing Labor Productivity 111

41. Percent of On-Us Items Received and On-Us Processing Labor Productivity 112

42. Bulk Filing Labor Productivity 113

43. Exception and Return Item Processing 114

44. Return Item Productivity 115

45. Exception and Return Item Productivity by Rate Discovered 116

46. Exception Item Productivity 118

47. Reject Processing Productivity by Area 119

48. Reject Processing Productivity 120

49. Reject Rate After Reader/Sorter High-Speed Reject Reentry by Area 121

50. Distribution of the Reject Rate After High-Speed Reject Reentry 122

51. Average Number of Rejects Reentered from the First Pass by Area 123

52. Average Number of Rejects Reentered from Subsequent Passes by Area 124

53. Reject Reentry Productivity by Area 125

54. Reject Reentry Productivity 126

55. Automated Reject Processing 127

56. Percent of Automated Reject Processing by Area 128

57. Distribution of the Automated Reject Processing Rate 130

58. Percent of Incoming Items Encoded 131

59. Percent of Supervisory Time to Clerical Man-Hours 132

60. Percent of On-Us Items 133

61. Percent of Payable-Through Drafts 134

62. Forms of Check Truncation 135

FOREWORD

BAI's fifteenth annual survey of banking's check collection system analyzes the system's performance for 1979-1985. This comprehensive survey contains important information on check processing operations and includes a general set of measures for evaluating and analyzing trends systemwide. Detailed survey findings include average reject rate, transit holdover, transit return items, employee productivity, check safekeeping, and electronic presentment.

The **1985 Survey of the Check Collection System** should provide assistance to financial institutions in evaluating their check processing operations and enable them to compare their bank experiences with their peers.

Bank Administration Institute acknowledges the work of William C. Fisher, principal research manager, in coordinating this project.

Marc J. Shapiro
Chairman of the Board
Bank Administration Institute

1985 SURVEY OF THE CHECK COLLECTION SYSTEM

SURVEY HISTORY

Banking's check collection system continues as our nation's primary payment system for handling transaction volume. This system, while using relatively specialized check handling equipment, is still labor-intensive in many of its related sub-operations. Although the interbank check exchange is often called the check collection system, it is, in fact, a loosely organized coordinated system. The procedures for control, crediting, security, and sorting are partially controlled by the Federal Reserve System and the Uniform Commercial Code and partially based on agreements between banks through correspondent banking relationships or clearing house arrangements.

Differences in competitive levels, as well as other factors, have caused significant differences in the resources, the productive capacity, and the quality of the various check processing operations in the commercial banking industry. Since each bank is responsible to its management for its own check processing operation, there is no central control responsible for total system performance. Yet, each bank would suffer if the check exchange process were to falter, because the entire system is based upon total cooperation and strict adherence to procedures by the participants.

Overall system performance varies over time because of changes in regulation, check volume, the labor market, transportation requirements, and technological development of systems and equipment, hence up-to-date information is necessary to enable each bank to compare its experiences with its peers.

In 1970, Arthur D. Little, Inc. (ADL), under the auspices of the Operations and Technology Task Force of the Monetary and Payments System (MAPS) of the American Bankers Association, collected and published data relative to the performance of banking's check collection system. The data were to be used as a basis for evaluating the adequacy of the check collection system by comparing it with similar data in future years. Therefore, ADL recommended a periodic collection of check volume data. The Atlanta Federal Reserve Bank Check Study, a project cosponsored by ABA, BAI, and the Federal Reserve System, represents follow-up research on the nation's check processing volume as it existed when the data were collected in June 1979.

Meanwhile, Bank Administration Institute has continued to conduct annual performance measurement surveys of the nation's check collection system. Since 1971, an annual survey has been conducted to collect data that would provide bankers with industry standards and a general set of measures for their own check processing operations. The results of each survey were also published by the Institute.

This report, the fifteenth in BAI's continuing program of monitoring the performance of banking's check collection system, analyzes the system's performance for the years 1979 through 1985. Survey data for 1971 through 1978 may be found in previous reports.

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[1] The Outlook for the Nation's Check Payment System: 1970-1980. Cambridge, Massachusetts: Arthur D. Little, Inc., December 1970.

1985 SURVEY RESPONDENTS

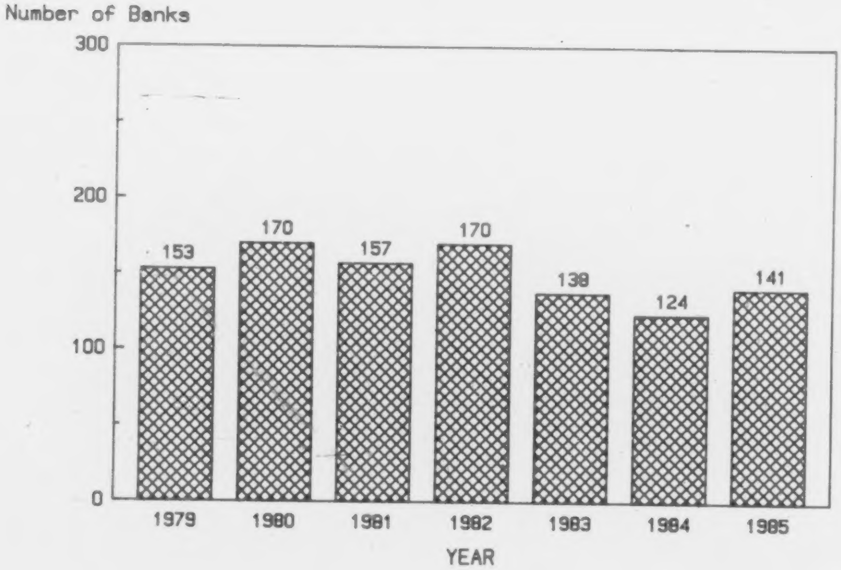
In August 1985, 200 commercial banks received the Institute's 1985 Check Collection Performance Measurement Survey questionnaire. Several banks that had been unable to participate in previous years were included in the survey distribution for 1985, while a few contributing institutions from previous years were unable to provide data this year. Participating banks collected data for the week of September 16-21, 1985. This was a new week in which to collect the survey data. Some prior survey weeks had contained a holiday, which created some difficulties in collecting data.

The total number of survey respondents is shown in Figure 1. The increase in participating banks is the result of continuous efforts by the Institute staff to get more banks involved that had not participated in the past while maintaining the solid base established in past surveys. Of the 141 survey respondents in 1985, 94 participated in the 1984 survey, thus providing a solid basis of continuity.

The survey respondents were from all 12 Federal Reserve Districts, representing 60 percent of the top 50 banks and 58 percent of the 100 largest banks in the United States. This respondent base is consistent with prior surveys.

The 1985 data represent 447 million checks processed, including 260 million transit checks and 187 million on-us items. According to the latest available information, each check is processed by an average of 2.4 financial institutions. These data were analyzed to determine overall collection performance in relation to past measurements and manpower utilization by check processing tasks.

Figure 1
Participating Banks



1985 SURVEY HIGHLIGHTS

Increased competition from the Federal Reserve and other institutions has forced banks to examine the efficiency of their check processing operations. Banks now are managing this traditionally "back room" operation as a business, emphasizing strategic planning, cost accounting, and automated processing strategies. The result has been a mixed improvement in payments processing productivity.

The mix of banks in this year's survey is different from that of previous years in that fewer of the top 50 banks participated. In reviewing individual banks' statistics on overall labor productivity, the findings were surprising. Despite a relatively modest 2 percent decrease in productivity for all banks, those banks with the largest item volumes experienced a nearly 4 percent decline in productivity.

It has been assumed that regional and small check-clearing banks have adopted the productivity improvement techniques successful in larger institutions. Clearly, some of these banks are beginning to approach the productivity levels achieved by their larger competitors. In the future it is likely that there will be a trend toward the implementation of manufacturing industry techniques to attain the productivity levels reached by other labor-intensive operations.

The check collection process has been made increasingly efficient over the years, particularly in the high-speed sorting process. But check collection continues to impose large labor costs, emphasizing how labor-intensive the process really is. Also, since collection of funds depends upon the physical presentment of the checks, financial institutions spend large sums on time-critical chartered transportation. Bankers should expect these costs to continue to increase, and as they do, the banks bearing these costs will have greater incentive to pursue electronic payment alternatives.

The survey revealed that encoding checks continues to require the largest percentage of total man-hours of all check-processing-related activities; 26 percent of total man-hours was devoted to encoding in 1985. Only 5 percent of the total man-hours was required actually to process the checks through reader/sorter equipment.

The processing of exception items is highly labor-intensive. The supervisory time devoted to this activity is indicative of management's concern about controlling labor costs associated with check processing operations.

Other survey findings:

1. The average reject rate dropped to 1.4 percent in 1985. Results also showed that 63 percent of the banks surveyed had reject rates at or below the national average.

2. Transit holdover rate declined to .7 percent in 1985. However, the average dollar value of a transit holdover increased to $718 from an average dollar value of $529 in 1984.

3. Transit return items increased to 819 items (per 100,000 transit items sent) from 702 items in 1984.

4. Return item productivity decreased to 50 return items processed per man-hour, down from an average of 52 items per man-hour in 1984.

5. The average number of checks processed by reader/sorter equipment increased to 16,013 items per man-hour, up from 15,059 items in 1984. The survey indicated that 35 percent of the banks had productivity in excess of 40,000 items per man-hour.

6. Overall labor productivity dropped to an average of 824 items per man-hour, a 2 percent decrease from 844 items in 1984.

7. Check safekeeping and electronic presentment, though still minor aspects of overall check processing activity, showed mixed improvement over 1984 levels. The total number of checks held in safekeeping dropped to 2.1 million items from 3.7 million items in 1984. The total number of checks presented for collection by electronic means jumped to 833,000 items from 244,000 in 1984.

THE MEASURES OF SYSTEM PERFORMANCE

The primary purpose of the BAI survey is to monitor the industry's check collection system performance. The system's performance can be measured in several ways: cost, speed, or the frequency of error. Although there may be many different ideas concerning what constitutes a system failure or an error, the survey and its succeeding analysis considered the following items to be representative of defects in the system's operation:

1. Reject rates.
2. Transit returns.
3. Free or lost items.
4. Missent, miscoded, and listing errors.
5. Transit holdovers.

Because banks use various definitions and data collection methods, the data presented on system failures have validity only when compared with data collected in the same manner.

Only minor modifications were made in the 1985 survey questionnaire. These changes did not appear to affect the collected data and were comparable to the previous survey data. If the responding banks collected the data in the same manner, the 1985 survey results will identify the changes that have occurred in the past year. All performance analyses for each subject are presented together.

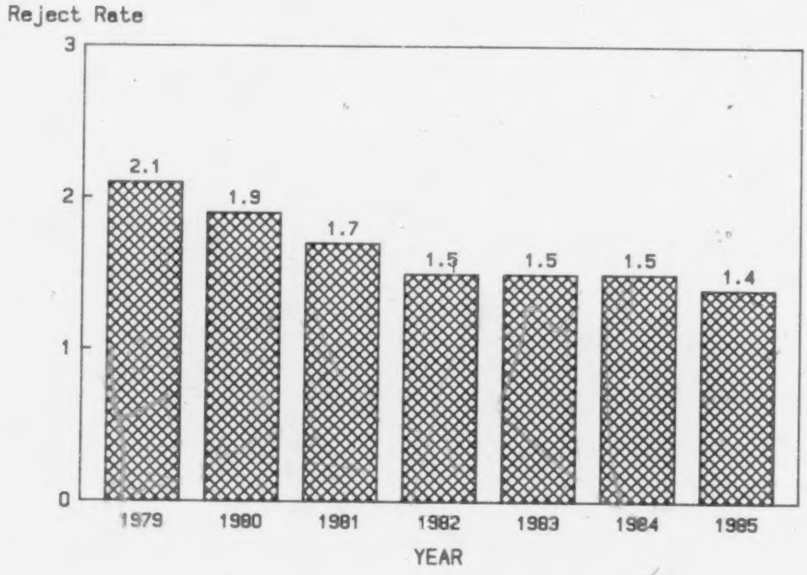
The formulas used in the calculation for each table are given to assist bankers in making their own comparisons. Several respondents could not answer every question in the survey because of their banks' internal systems. Consequently, only those banks that furnished valid answers to all questions pertaining to a given formula were considered in the calculations, which accounts for the varying number of respondents in the different tables.

Reader/Sorter Reject Rates

Definition: Percentage of items rejected for any reason by a MICR reader-sorter.

As shown in Figure 2, the average reject rate was 1.4 percent in 1985, lower than in 1984.

Figure 2
Reject Rate



Almost half the geographic areas showed an increase in their respective reject rates. The areas are ranked by reject rate as follows:

Area	Rate
Minneapolis/St. Paul	0.8%
Pittsburgh	1.1%
Cleveland	1.2%
San Francisco	1.2%
Denver	1.2%
Los Angeles	1.3%
Washington, D.C.	1.3%
Houston	1.4%
Dallas	1.4%
St. Louis	1.4%
Chicago	1.4%
Detroit	1.5%
Atlanta	1.6%
Philadelphia	1.8%
New York	1.8%
Boston	1.8%

Historical reject rates of each geographic area are shown in Table 2 of Appendix B.

An analysis of the reject rate indicates that 63 percent of the banks surveyed have reject rates at or below the national level, as shown in Figure 3. An analysis, however, shows that 9 percent of the banks still have reject rates in excess of 2.0 percent.

Figure 3
Distribution of the Reject Rate

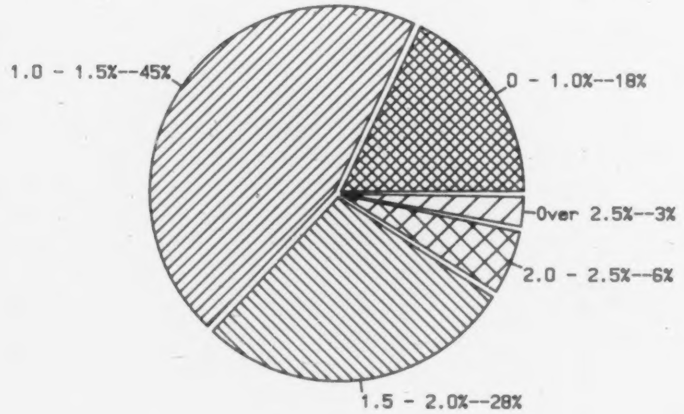
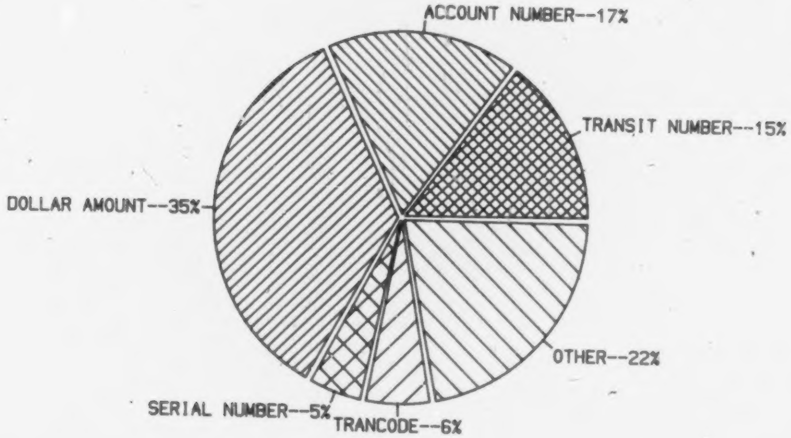


Figure 4
Types of Rejects



In analyzing the cause of rejects, the analysis continues to show that dollar-amount encoding errors continue to be the primary cause of prime-pass rejects, accounting for 35 percent of all rejects (Figure 4). This type of reject is among the most difficult for the industry to deal with, especially with the entry of new processors to the check collection system and the large number of pre-encoded items originating from the corporate and public sectors. Many banks have installed quality control departments and monitoring systems that allow them to identify by bank, customer, proof operator, and machine the exact source of encoding errors. Banks should also monitor the quality of encoding from lock box operations. Typically, these banks have reduced the number of encoding errors they experience.

Figure 3 also indicates that the printing industry has continued its efforts in quality control with regard to the printing of other fields in the MICR line. Many printers have implemented quality-control programs that have helped to reduce significantly the reject rate, but more can be done. Specifically, printers can ensure that their customers have provided them with adequate, accurate, and acceptable instructions. In addition, through their industry trade groups, they can improve the awareness level of their members about American National Standards Institute, Inc. (ANSI), standards and the need for quality control programs.

During 1985, the industry continued to struggle with the problem of embossment. Embossment rejects occur when the impact print heads hit the checks too hard, resulting in the magnetic ink being displaced from its intended position. Rejects occur because the resulting signal strength and/or waveshapes do not conform to standards. In addition, extraneous ink and voids can occur. Several pieces of equipment are available that measure the level of embossment. Working through the ANSI X9B Committee, the industry is developing adequate standards to which everyone can adhere.

Figures 5 through 10 show the historical trend for each type of reject. Additional information is shown in Table 4 of Appendix B.

Figure 5
Transit Number Rejects

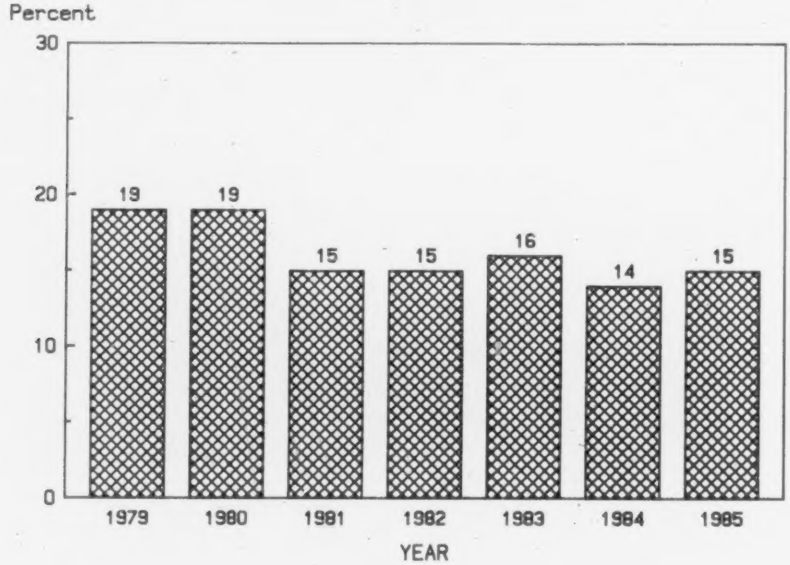


Figure 6
Account Number Rejects

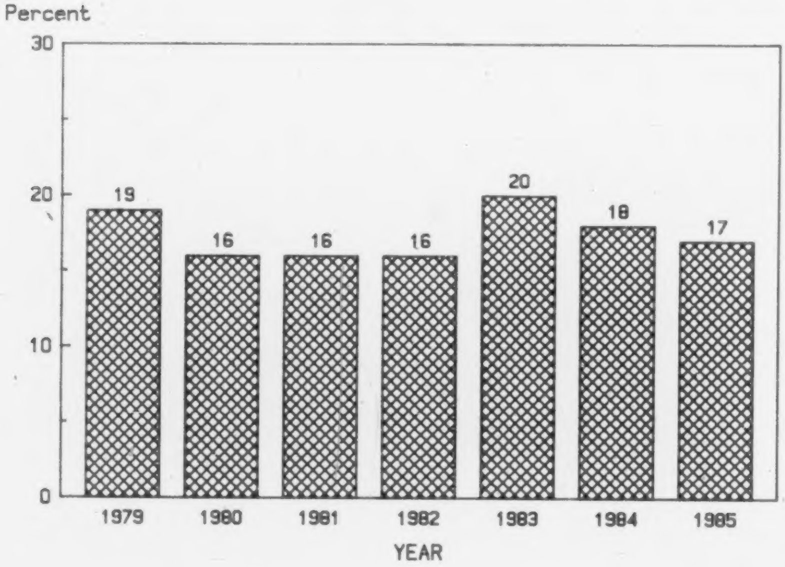


Figure 7
Dollar Amount Rejects

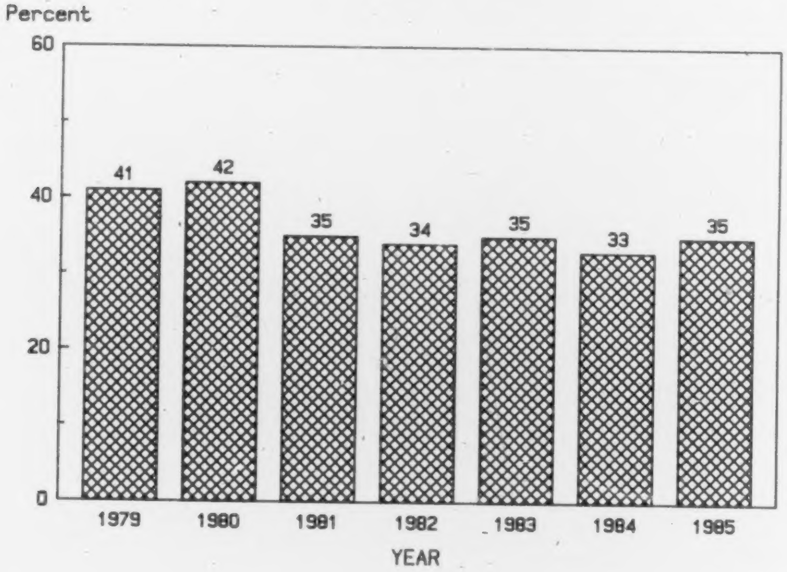


Figure 8
Serial Number Rejects

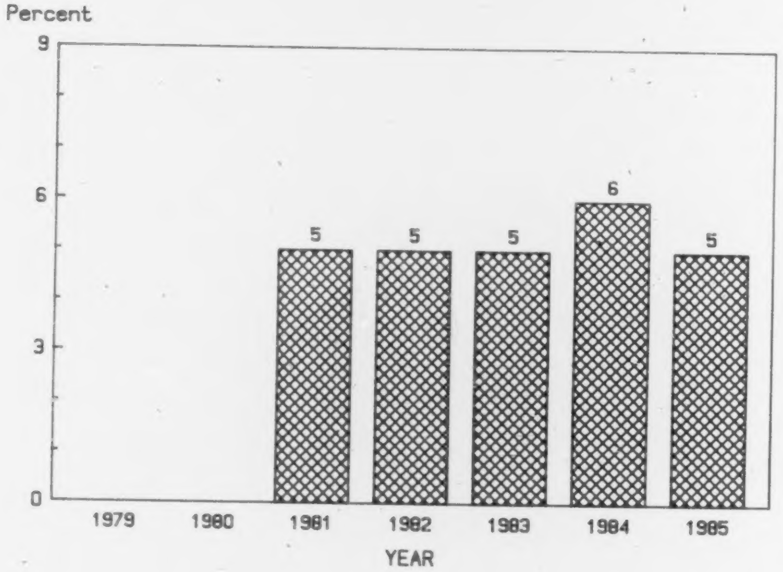


Figure 9
Trancode Rejects

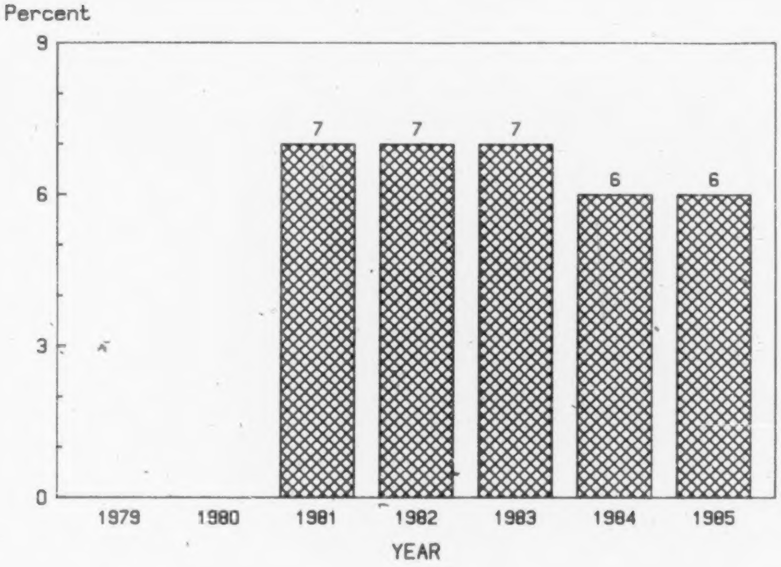
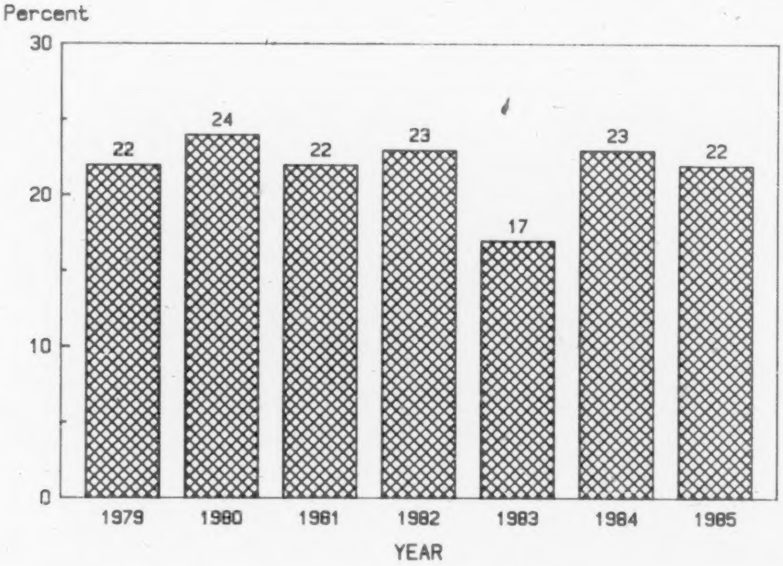


Figure 10
Other Rejects

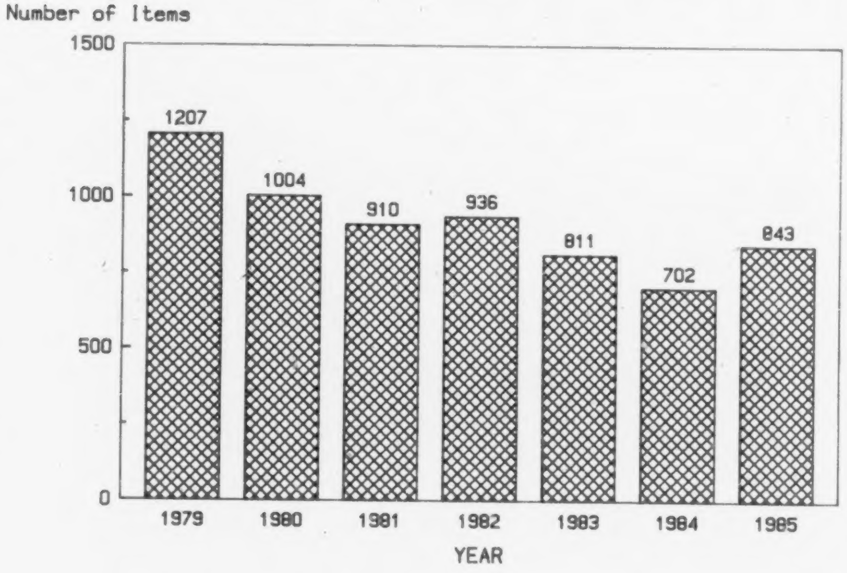


Transit Returns

Definition: Items returned today for any reason that originally were sent out as transit items from this bank.

The average rate increased to 819 items per 100,000 transit items sent in 1985 from 702 items in 1984. As shown in Figure 11, the transit return rate has declined steadily since 1979, when the rate was 1,207 items per 100,000 transit items sent. The increase in 1985 was due more to economic conditions than to any other single factor.

Figure 11
Transit Returns (Rate per 100,000 Items Sent)



As shown in Figure 12, 19 percent of the banks surveyed had transit return rates of less than 600 items, while 12 percent of the banks had transit return rates in excess of 1,200 items.

The average dollar value of a transit return item increased to $869 in 1985 from $828 in 1984. The historical trend is shown in Figure 13.

Figure 12
Distribution of Transit Return Rate
(Rate per 100,000 Items Sent)

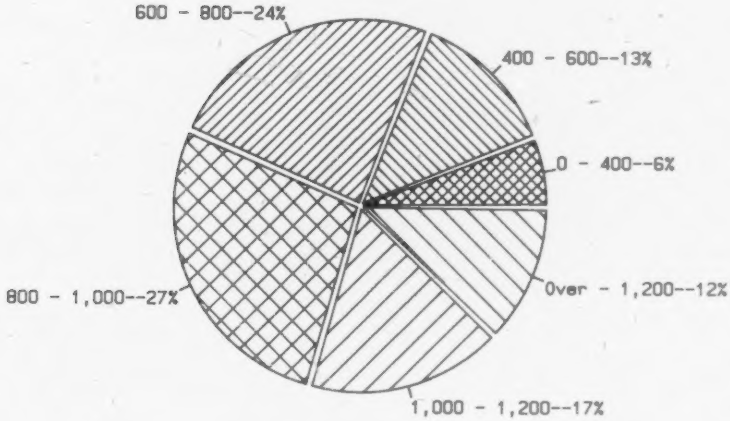


Figure 13
Average Dollar Value of Transit Return Item

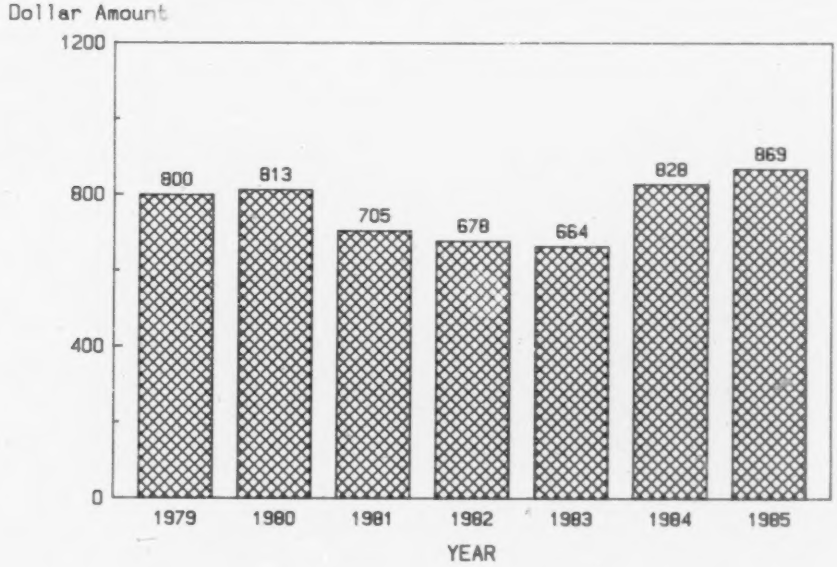
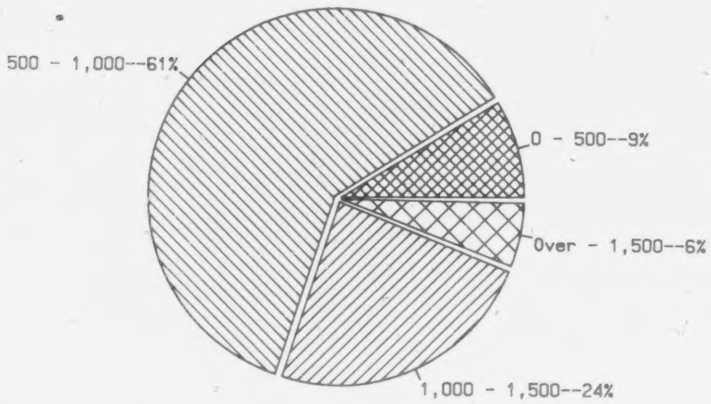


Figure 14
Distribution of Transit Return Dollars
(Rate per 100,000 Sent)



Return items continue to be a major problem for the industry and the public as well. During 1985, several states passed laws dealing with "delayed availability" and "check hold policies." Several more states are in the process of adopting similar legislation. While the intent of these legislative actions is to provide protection to consumers from excessive hold policies by all types of depository institutions, the apparent result is less than satisfactory to both the consumers and the industry.

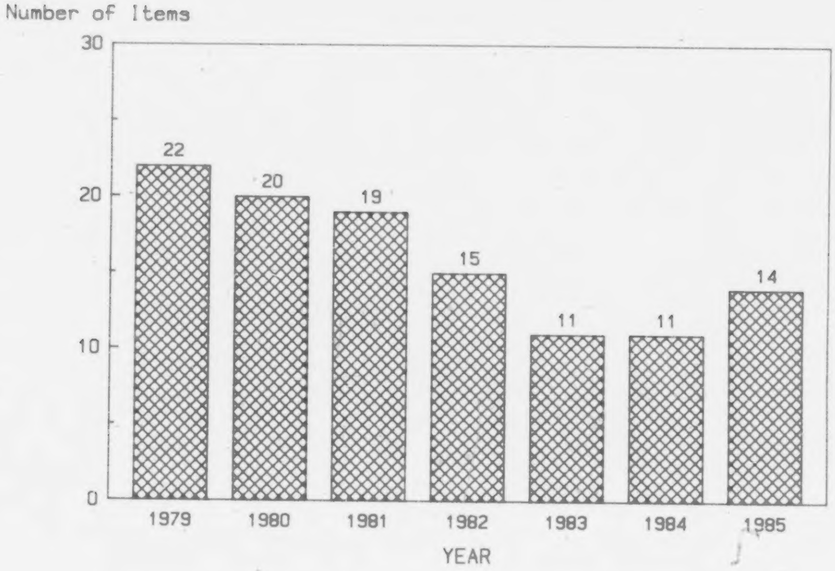
Historically, hold policies have been established to protect the banks from losses resulting from checks being returned. These holds have in turn delayed the availability of deposited funds to the depositing customer.

Definition: Free items are items received but not listed on the incoming cash letter. Lost items are items listed on the incoming cash letter but not received.

The combined average rate of free and lost items discovered rose to 14 items per 100,000 incoming items in 1985, as shown in Figure 15.

Additional information is provided in Tables 8 through 11 of Appendix B.

Figure 15
Free and Lost Items Discovered
(Rate per 100,000 Items Received)



Missent, Miscoded, and Listing Error Items

Definition: Items that are discovered to have been missent for any reason, or that have been miscoded by this bank or other banks, or that are listed for one amount but drawn for a different amount.

The average rate of missent, miscoded, and listing error items discovered for each 100,000 transit items sent increased to 14 items in 1985 from 12 items in 1984.

With respect to geographic areas, San Francisco reported the lowest rate, 9.2 items. Washington, D.C., led this year's list with 34.7 items as compared to 9.5 items in 1984.

Many banks have reduced staff levels in 1985 to obtain greater economies of scale and more efficient operations. The question needs to be asked, however: Given the decrease in quality that is reflected in greater amounts of time spent by the adjustments staff, is the cutting of operational staff truly cost justified?

Additional information is provided in Tables 12 through 16 of Appendix B.

Exception and Return Items

Definition: Transit items that require special reconcilement with other banks, such as missent, miscoded, listing errors, returns, and free and lost items.

The average rate of exception and return items discovered increased to 866 items per 100,000 items sent in 1985 from 731 items per 100,000 items sent in 1984.

Thirty-two percent of the banks had rates greater than 1,000 items in 1985, which is in marked contrast to the 14 percent of the banks that were above the 1,000 item level in 1984.

The survey indicates that the percent of exceptions, returns, and reject items to the total volume of items processed remained at 1.9 percent in 1985 (Figure 16).

The survey also indicates that 57 percent of the banks had rates less than 2.0 percent in 1985 as compared to 66 percent of the banks in 1984 (Figure 17). Additional information is provided in Tables 17 through 20 of Appendix B.

Figure 16
Exceptions, Returns, and Rejects to Total Items Processed

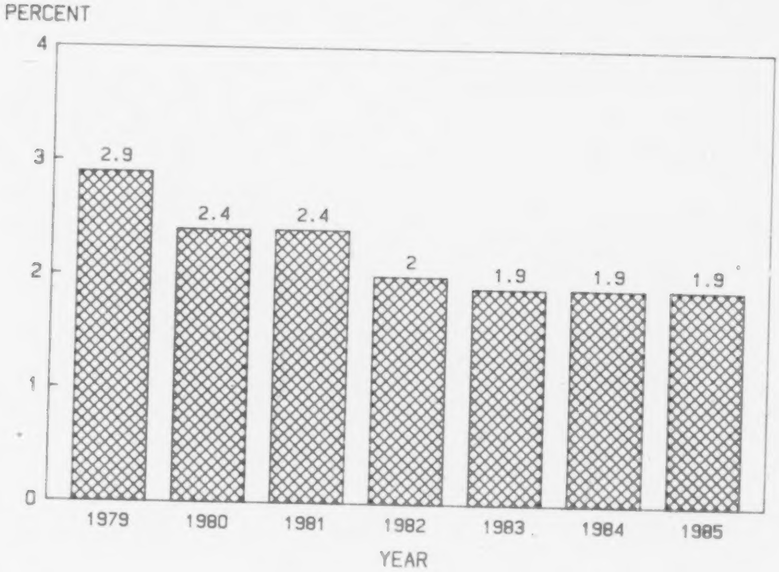
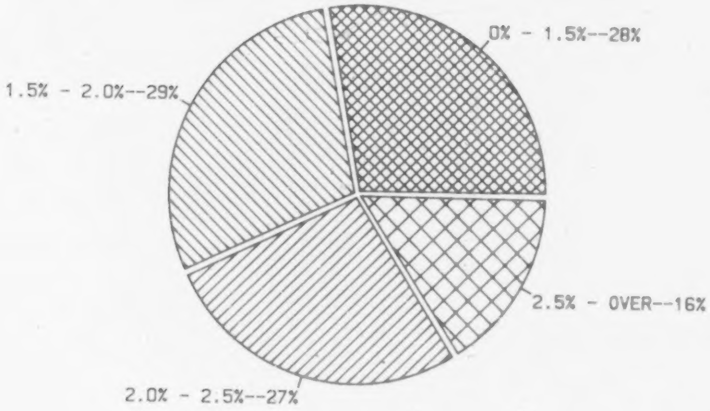


Figure 17
Distribution of Exceptions, Returns, and Rejects Rate



A Dollar Analysis of Return and Exception Items

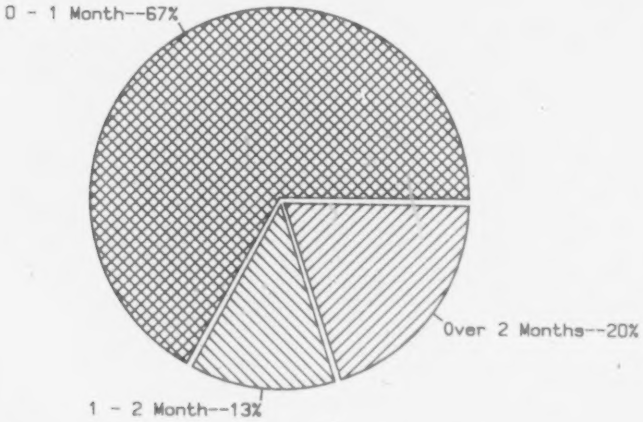
The average dollar value of a return item processed increased to $869 in 1985 from $828 in 1984. The total weekly dollar value of exception items discovered increased by 6 percent, to $14,817,000, in 1985. However, the total weekly dollar value of exception items resolved decreased by 7 percent, to $9,273,000, in 1985. Additional information is provided in Table 21 of Appendix B.

Outstanding Exception Items

Outstanding exception items are a key indicator of how the industry makes decisions regarding the use of resources for resolving exception items. In 1985, 67 percent of the dollars outstanding were resolved in less than one month, as shown in Figure 18. This compares with the 78 percent of dollars that were resolved in less than one month in 1984.

The industry is striving to resolve outstanding exception items more quickly. The number of items resolved in less than one month improved from 82,390 in 1984, to 86,296 in 1985. However, the total dollar amount for these items fell to $404 million in 1985 from $572 million in 1984. This suggests more supervisory time is needed to analyze how to clear large dollar exceptions more quickly.

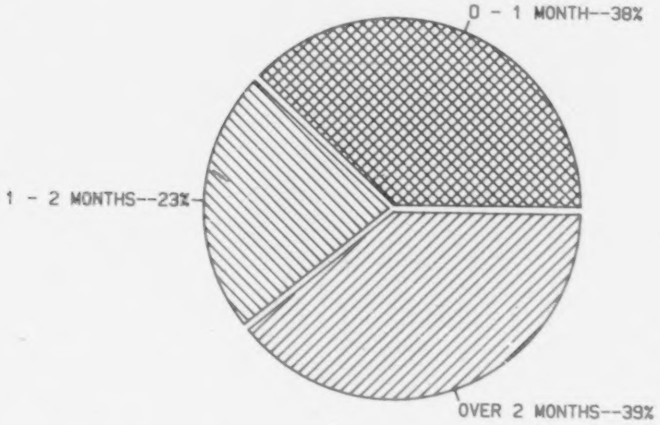
Figure 18
Distribution of Exception Items Outstanding
(percent of dollars)



Bankers are concentrating their reconcilement efforts on the high-volume/low-dollar exception items. Of the items outstanding, 38 percent were resolved in less than one month in 1985 (Figure 19). In 1984, 28 percent of the items outstanding were resolved in less than one month, which reflects continued recognition of the high cost of float and the implied operating costs associated with exception item processing.

As indicated in the 1984 survey, the marketplace has developed several innovative procedures and software packages to improve the efficiency of the reconcilement process. With greater micro computer use in banking, more product offerings are expected in the industry.

Figure 19
Distribution of Exception Items Outstanding
(percent of items)



To understand better the long-term trends in the reconcilement of exception items, the following graphs were prepared:

Figure	
20	Percent of Outstanding Exception Items 0 to 1 Month Outstanding: Dollars
21	Percent of Outstanding Exception Items 1 to 2 Months Outstanding: Dollars
22	Percent of Outstanding Exception Items over 2 Months Outstanding: Dollars
23	Percent of Outstanding Exception Items 0 to 1 Month Outstanding: Items
24	Percent of Outstanding Exception Items 1 to 2 Months Outstanding: Items
25	Percent of Outstanding Exception Items over 2 Months Outstanding: Items

In addition to analyzing the outstanding exception items as indicated, the age distribution of outstanding exception items was compared also for the average bank according to the method used to microfilm items: after reader/sorter processing, before reader-sorter processing, or during reader/sorter processing. Because of the differences in resources and sizes of the respondent banks, the amount and the number of items outstanding should not be compared. The key comparison is the relative percentage. The survey data indicate that banks have made progress in reducing the age of outstanding exception dollars, particularly for items filmed during and after reader/sorter processing. A significant increase in outstanding exception items was experienced in those items microfilmed before reader/sorter processing.

Additional information is provided in Tables 22 and 23 of Appendix B.

Figure 20
Percent of Outstanding Exception Items
0 to 1 Month Outstanding: Dollars

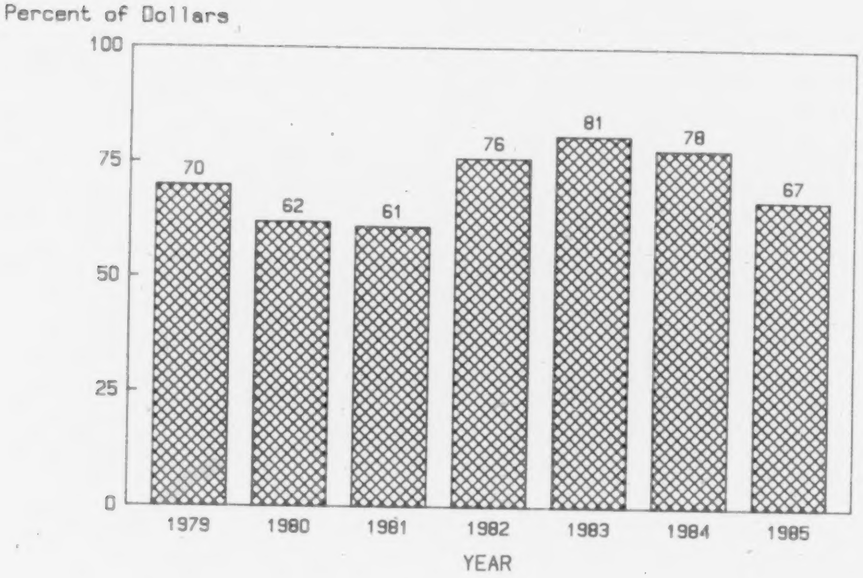


Figure 21
Percent of Outstanding Exception Items
1 to 2 Months Outstanding: Dollars

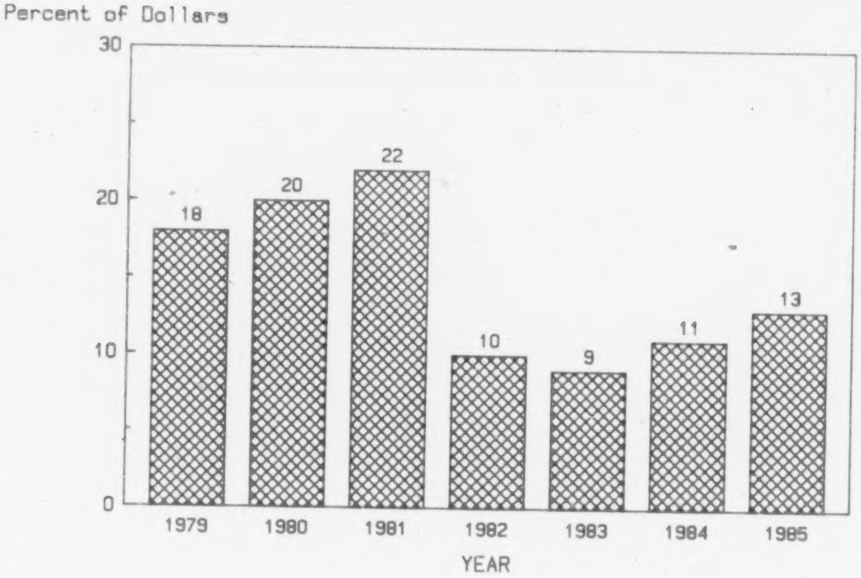


Figure 22
Percent of Outstanding Exception Items over 2 Months Outstanding: Dollars

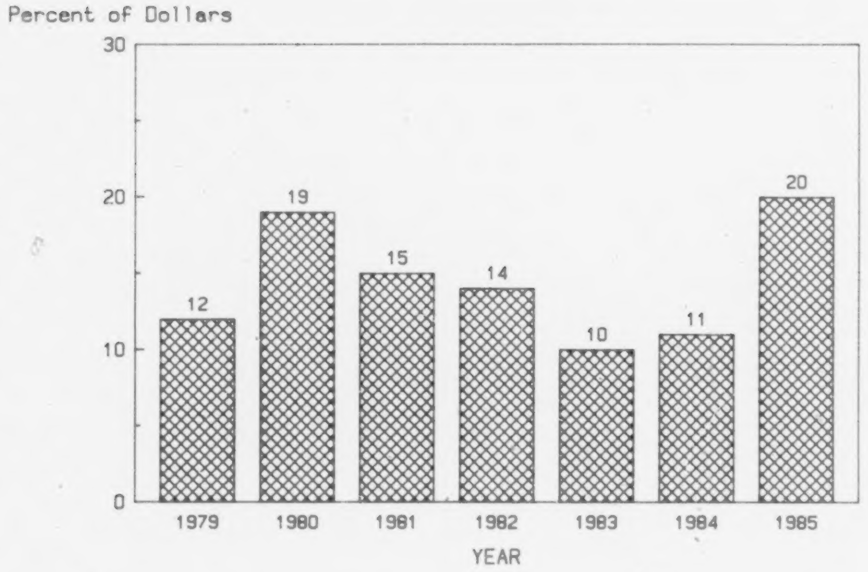


Figure 23
Percent of Outstanding Exception Items 0 to 1 Month Outstanding: Items

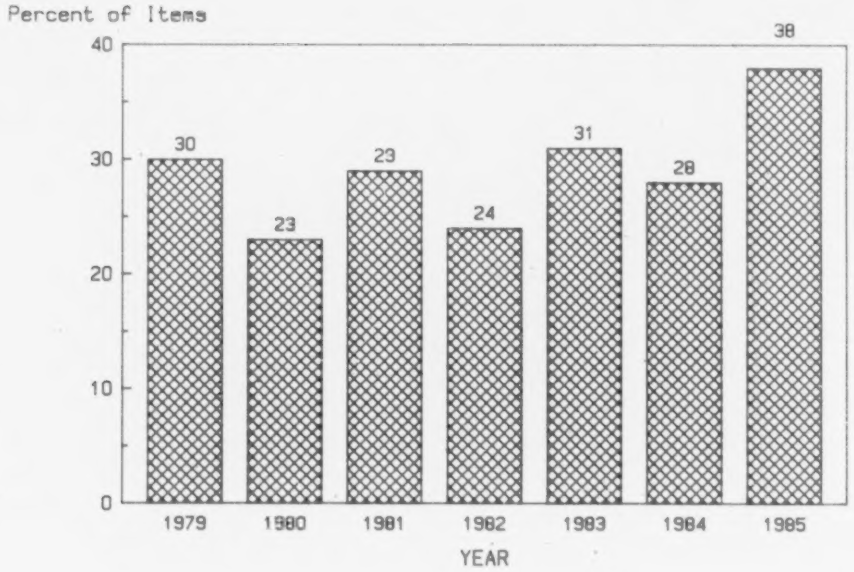


Figure 24
Percent of Outstanding Exception Items 1 to 2 Months Outstanding: Items

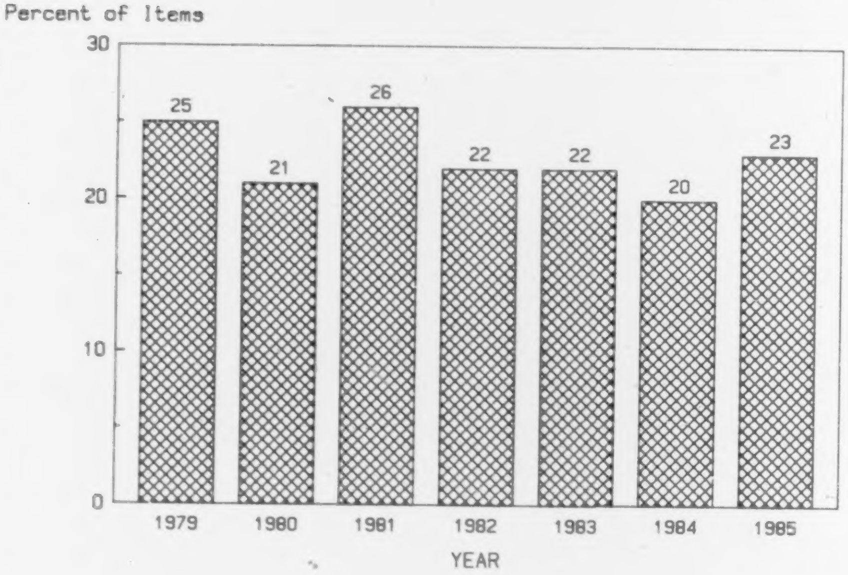
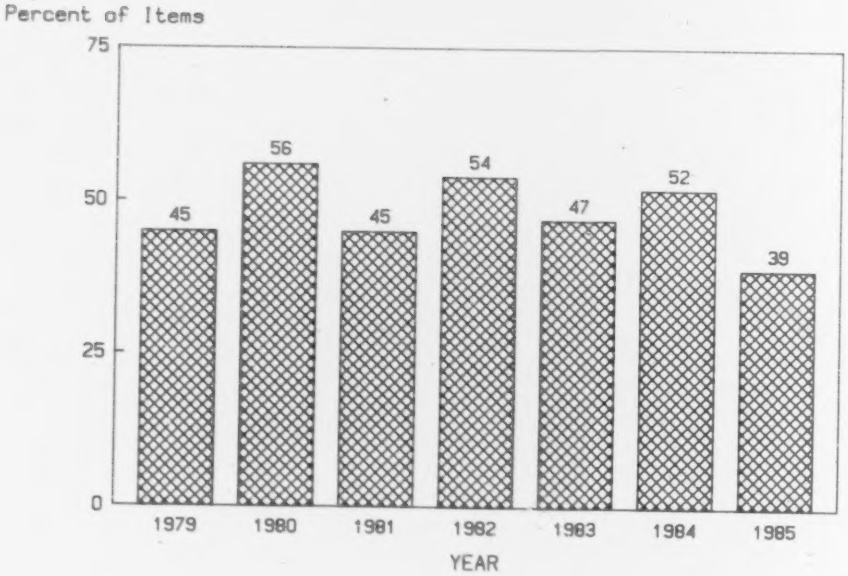


Figure 25
Percent of Outstanding Exception Items over 2 Months Outstanding: Items



A Comparison of Balancing Policy and Experience

Since 1971, information has been gathered about balancing policy and the individual growth of exception items and the staff to process these items. In 1985, the trend was consistent with prior years in that banks continue to recognize the high cost of float and will send out unbalanced cash letters if they are within certain specified limits. The survey indicates that while 48 percent of the bankers believe that the exception item volume has grown, only 26 percent have increased their staffing levels. In addition, overall staffing levels decreased by 1 percent in 1985 as compared to a 4 percent decrease in 1984. Added information is provided in Table 24 of Appendix B.

Transit Holdover

Definition: Items in transit holdover are those items that were received by a bank before a deadline but were not processed by either high- or low-speed systems in time to be sent for collection. These items may result in a loss of float to the bank and/or its customers.

The transit holdover rate dropped significantly, to .7 percent in 1985 (Figure 26). However, the average dollar value of a transit holdover rose to $718 in 1985 from $529 in 1984 (Figure 27). The median dollar value of a transit holdover decreased to $526 in 1985 from $519 in 1984.

The survey indicates that 89 percent of the banks have transit holdover rates of less than 1 percent in 1985 as compared with 81 percent of the banks in 1984.

The Federal Reserve has continued its float reduction efforts through explicit pricing, adjustments, fractional availability (which is scheduled to be eliminated in 1986), improvement to the interdistrict transport system (ITS), and implementation of the high-dollar group sort. The result has been to eliminate float from the Federal Reserve system and to pass that float back to the banking community. Bankers, in turn, have developed several systems that identify and quantify the amount of float that they then charge back to their customers.

Currently, there is a market disintermediation as some banks adjust to Federal Reserve actions without a corresponding adjustment to their customer accounts. In time, this disintermediation may disappear between banks and their customers. Bankers must continue their efforts to reduce transit holdovers and to allocate properly the associated float to their respective customers. Some holdover float, however, is the result of inefficient operations. In these cases, banks must establish customer policies that deal with how the cost of float is allocated.

Additional information is provided in Tables 25 and 26 of Appendix B.

Figure 26
Transit Holdover Rate

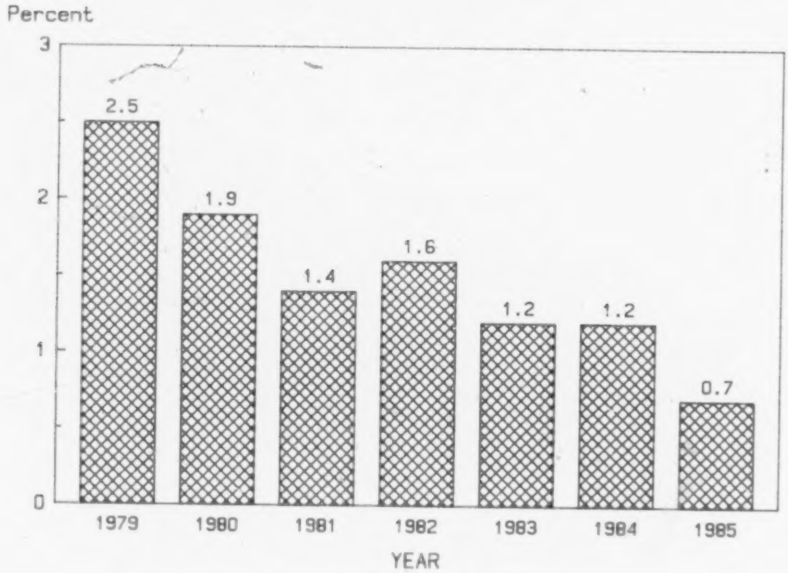
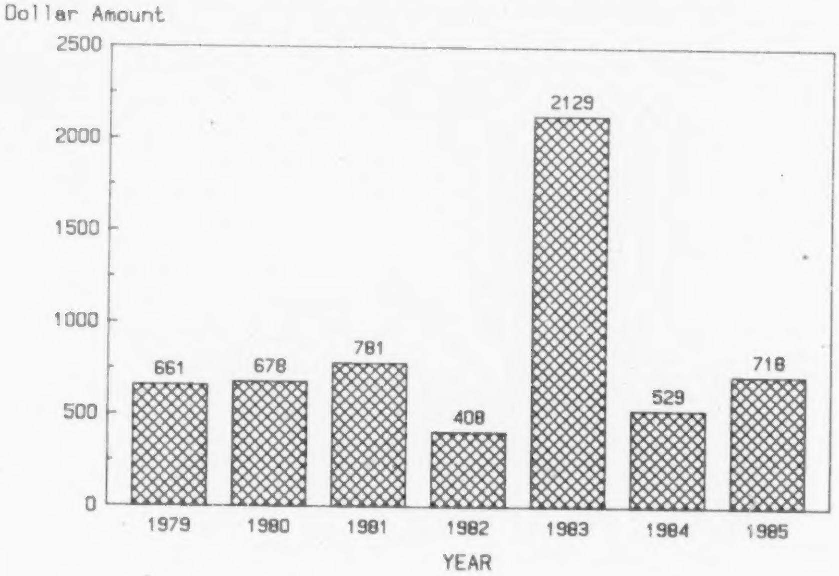


Figure 27
Average Dollar Value of Holdover Item



This section of the survey on check processing productivity presents an analysis of the data gathered concerning the distribution of manpower according to the following major task groupings:

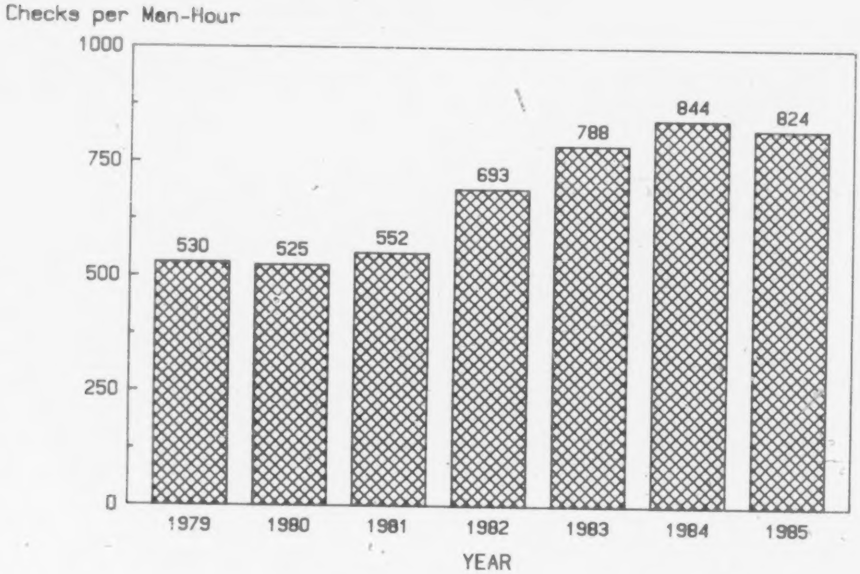
1. Data control (balancing and correction).
2. Encoding operations.
3. Check receiving operations.
4. Reader/sorter operations.
5. Cash letter makeup.
6. Microfilming operations.
7. On-us processing and return item processing.
8. Exception item processing.
9. Reject processing.
10. Bulk filing.

The labor data reported were generally comprehensive. The problem of rounding was eliminated by requesting the actual item count. Productive man-hours rather than man-days provided a more uniform time base. Both the average and the median of the distributions were calculated. Caution should be exercised when comparisons are made between the following data and individual bank statistics. A wide variety of variables can account for rather significant deviations from the national and geographic norms. In addition, productivity is measured in man-hours not machine-hours. (This is especially important with respect to reader/sorter productivity.)

Labor Intensiveness

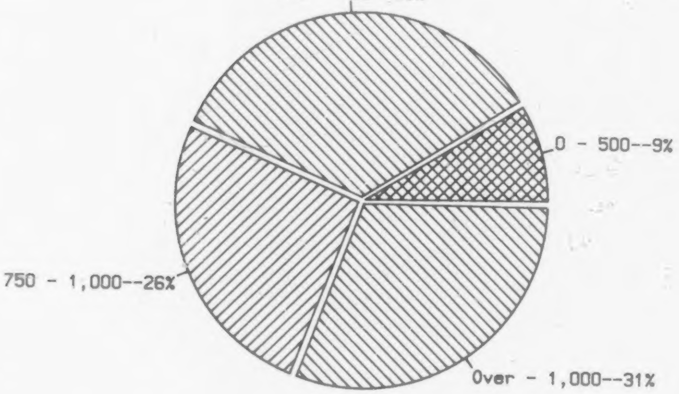
Labor productivity declined 2 percent, to an average of 824 items per man-hour in 1985, from 844 items per man-hour in 1984 (Figure 28). The median decreased to 868 items per man-hour in 1985 from 1,093 items in 1984.

Figure 28
Overall Labor Productivity



The survey indicates that 44 percent of the banks have overall productivity rates below 750 items per man-hour (Figure 29), while 31 percent of the banks have rates that exceed 1,000 items per man-hour.

Figure 29
Distribution of Overall Labor Productivity



Regarding the geographic differences that exist, the survey found the relative rankings to be:

Area	Rate
San Francisco	1,196
St. Louis	981
Philadelphia	956
Pittsburgh	926
Denver	912
Chicago	889
Boston	857
Cleveland	847
Dallas	827
Washington, D.C.	814
Atlanta	799
Houston	765
Los Angeles	718
Detroit	655
New York	497
Minneapolis/St. Paul	320

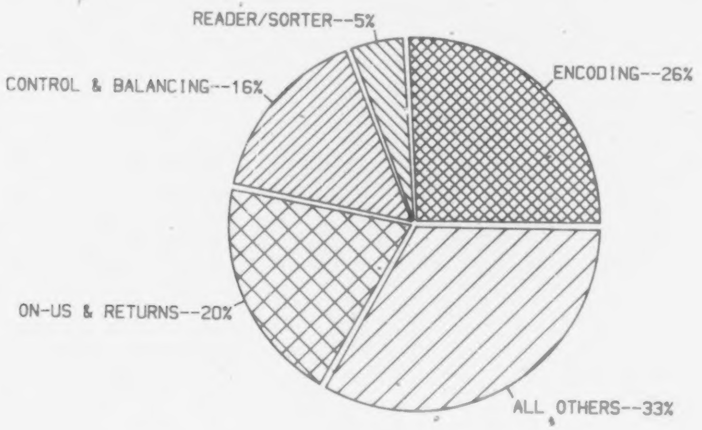
Historical productivity rates for each geographic area and additional information are given in Tables 27 and 28 of Appendix B.

Labor Distribution

A distribution of the major tasks performed in check processing is illustrated in Figure 30. The survey showed that the encoding function involved 26 percent of the total man-hours devoted to check processing in 1985. By contrast, only 5 percent of the total man-hours is required actually to process checks through the reader/sorter equipment.

In 1980, two new tasks - check receiving (Task C) and bulk filing (Task H) - were added to the survey. Each of the tasks, A through I, will be described. Additional information is provided in Table 29 of Appendix B.

Figure 30
Distribution of Overall Labor Productivity by Tasks



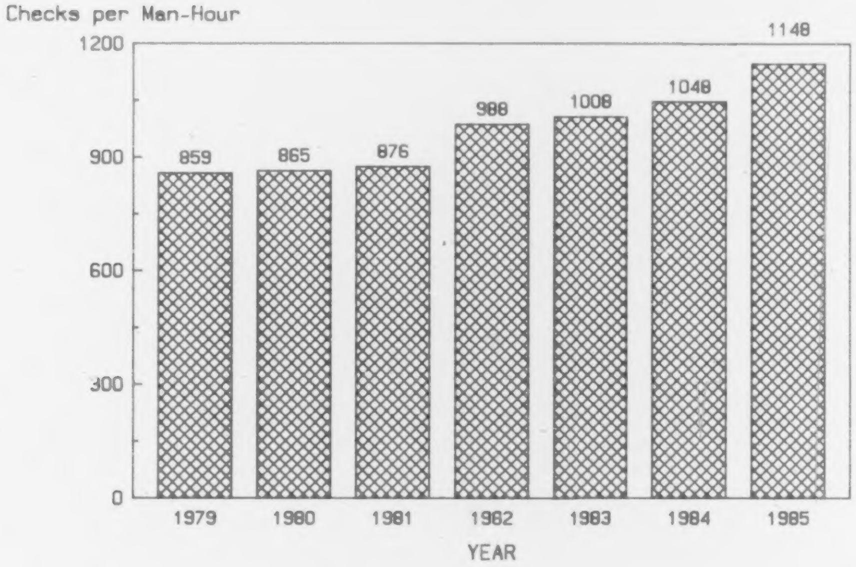
Data Control — Balancing and Correction

In 1985, average balancing and correction productivity decreased 10 percent, to 5,305 items per man-hour from 5,890 items per man-hour in 1984. The median productivity, however, decreased by 2 percent, to 6,160 items per man-hour from 6,269 items per man-hour in 1984. Additional information is provided in Table 30 of Appendix B.

Encoding Operations

Encoding productivity has continued to increase since 1979 (Figure 31). The survey shows that the combined average for both multipocket and single-pocket proof machines was 1,148 items per man-hour in 1985 as compared to 1,048 items per man-hour in 1984. The continued use of incentive programs and quality-control techniques has contributed to this increase. Additional information is provided in Tables 31 through 34 of Appendix B.

Figure 31
Encoding Labor Productivity



Check-Receiving Operations

The current survey indicates that some loss has occurred in check-receiving operations (Figure 32). In 1985, the average productivity was 10,466 items per man-hour, down from 11,703 items per man-hour in 1984. The median productivity was 14,022 items per man-hour in 1985 as compared to 15,699 items per man-hour in 1984 (Figure 33). Additional information is provided in Table 35 of Appendix B.

Figure 32
Check Receiving Productivity (Average)

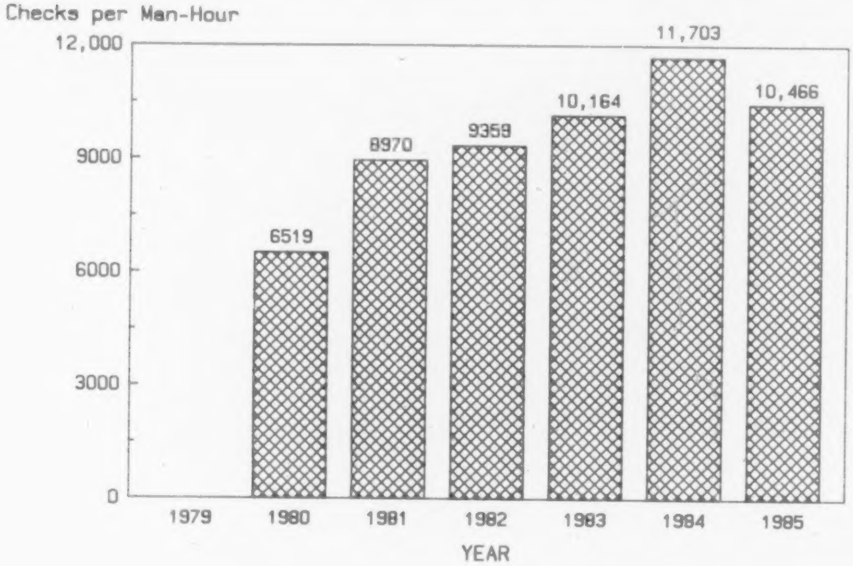
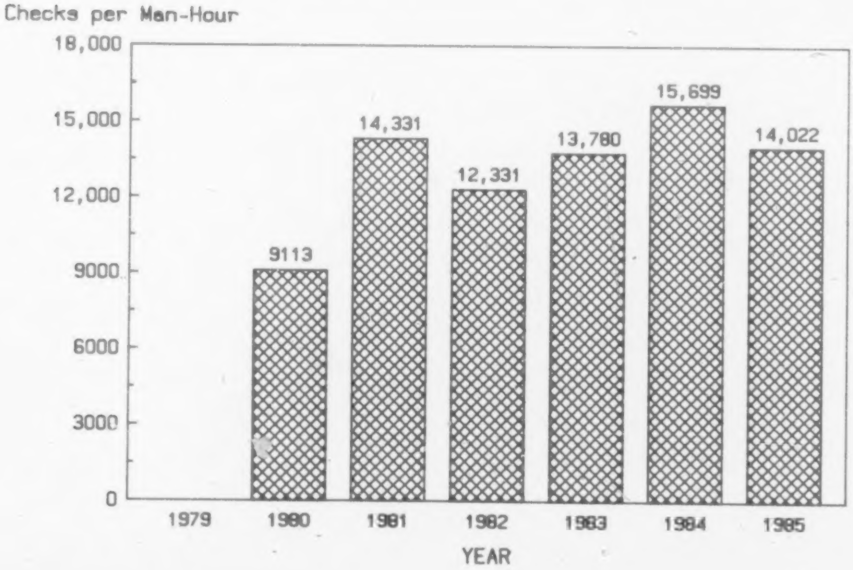


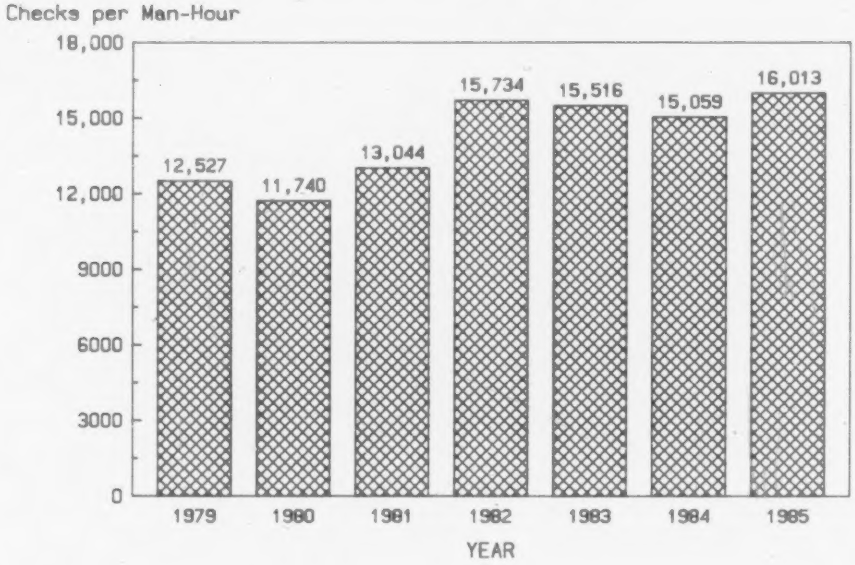
Figure 33
Check Receiving Productivity (Median)



The average number of checks processed by reader/sorter operations increased to 16,013 items per man-hour in 1985 (Figure 34). In 1984, the number of items per man-hour was 15,059.

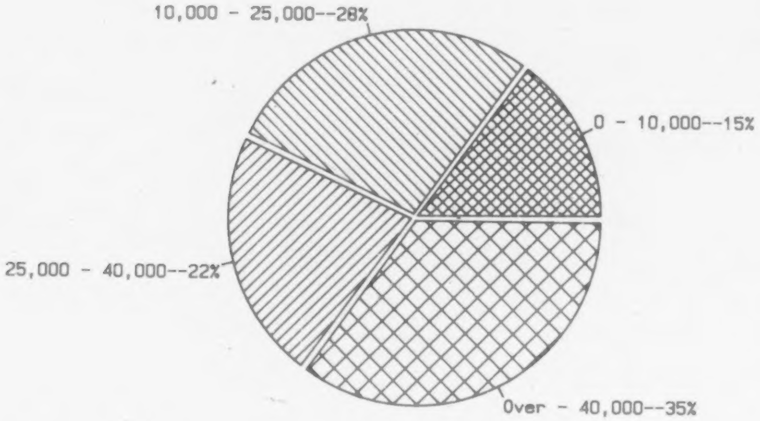
Hardware manufacturers seem to be producing better equipment, smaller institutions are upgrading their utilization of such equipment, and operators are continuing their efforts to handle greater volumes of checks productively.

Figure 34
Reader/Sorter Labor Productivity



The survey indicates that 35 percent of the banks have reader/sorter productivity in excess of 40,000 items per man-hour (Figure 35). Additional information is provided in Table 36 of Appendix B.

Figure 35
Distribution of Reader/Sorter Productivity



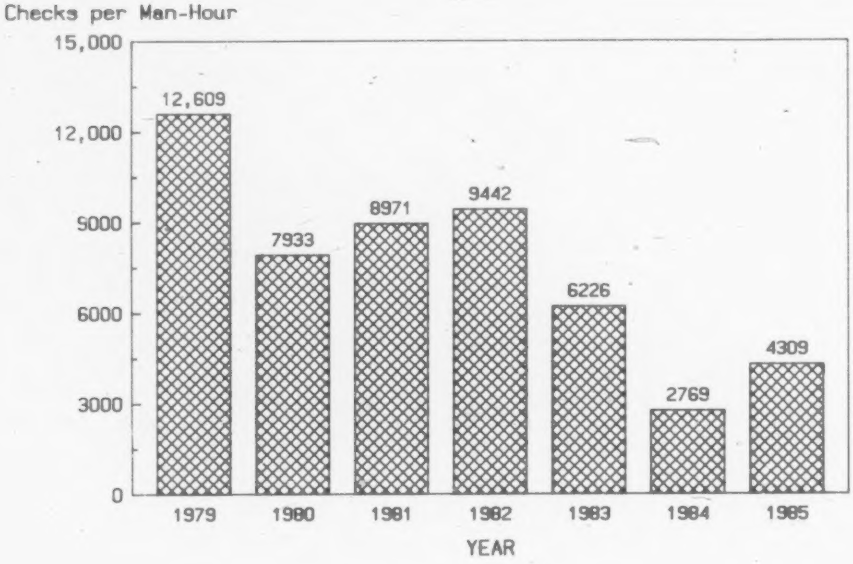
Cash Letter Makeup and Microfilming

Combined cash letter makeup and microfilming labor productivity decreased to 6,883 items per man-hour in 1984 as compared to 6,923 items in 1983.

A separate analysis was done for cash letter makeup and microfilming. Average cash letter makeup productivity increased 19 percent in 1984, to 8,508 items per man-hour, up from 7,173 items in 1983. The median increase was only 11 percent, or 9,059 items per man-hour in 1984, up from 8,161 items in 1983.

Microfilming productivity jumped significantly in 1985 (Figure 36). The survey indicates that the average productivity rose to 4,309 items per man-hour in 1985 as compared to 2,969 items in 1984. While the analysis failed to identify the cause of the increase in microfilming productivity, several scenarios could account for this situation. Among the possible explanations are better-maintained equipment, better reporting of hours on this activity, and microfilming quality-control programs. Additional information may be found in Tables 37 through 39 of Appendix B.

Figure 36
Microfilming Labor Productivity



One note of interest and caution is in order if comparisons between banks and the Federal Reserve are made: Banks are required to microfilm all checks in order to be able to reconstruct deposits, while the Federal Reserve has not adopted that procedure as an operational policy.

On-Us Processing - Labor Productivity

Average on-us productivity increased to 1,389 items per man-hour in 1985 from 1,352 items in 1984. The median decreased 3 percent, to 1,529 items per man-hour in 1985, from 1,578 items in 1984.

Bulk Filing Labor Productivity

Bulk filing labor productivity was first measured in 1981, and since that time a large number of banks have implemented bulk filing. However, because of the wide variances in how bulk filing has been installed and how man-hours are reported, caution should be exercised when BAI survey results are compared to an individual bank's operations.

The survey indicates that the average productivity in bulk filing was 4,198 items per man-hour in 1985 as compared to 4,467 items in 1984 (Figure 37). The productivity in the bulk filing of items seems to be consistent since it was first measured in 1981 (Figure 38). Additional information is provided in Table 42 of Appendix B.

Figure 37
Bulk Filing Labor Productivity

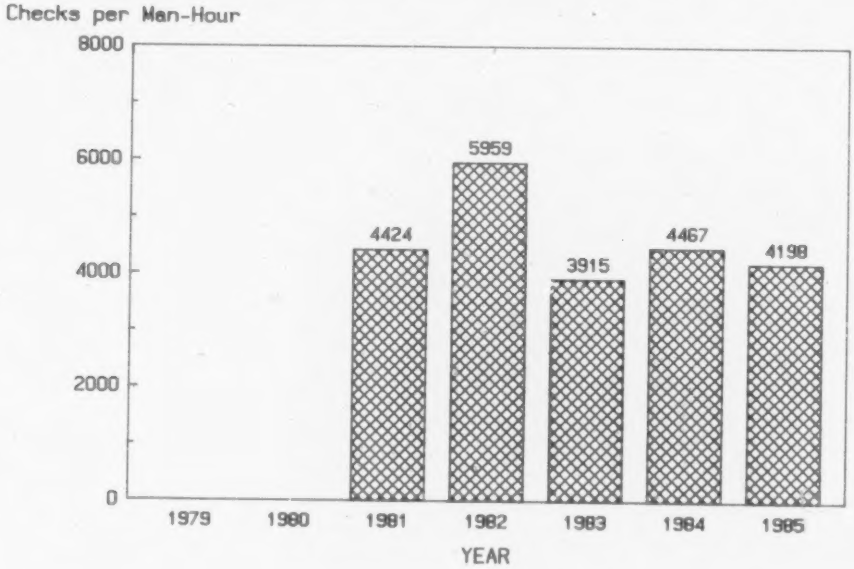
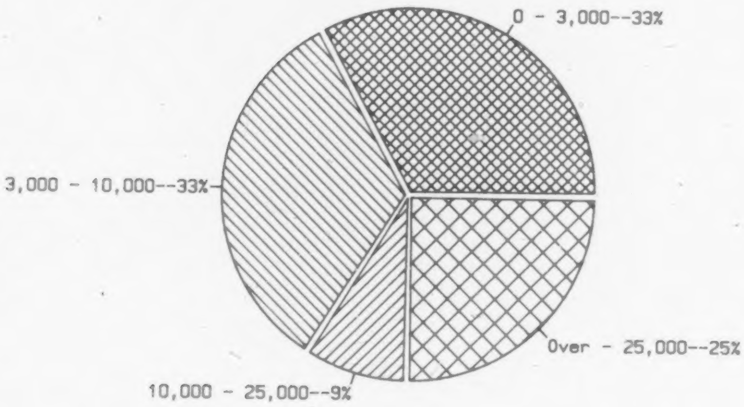


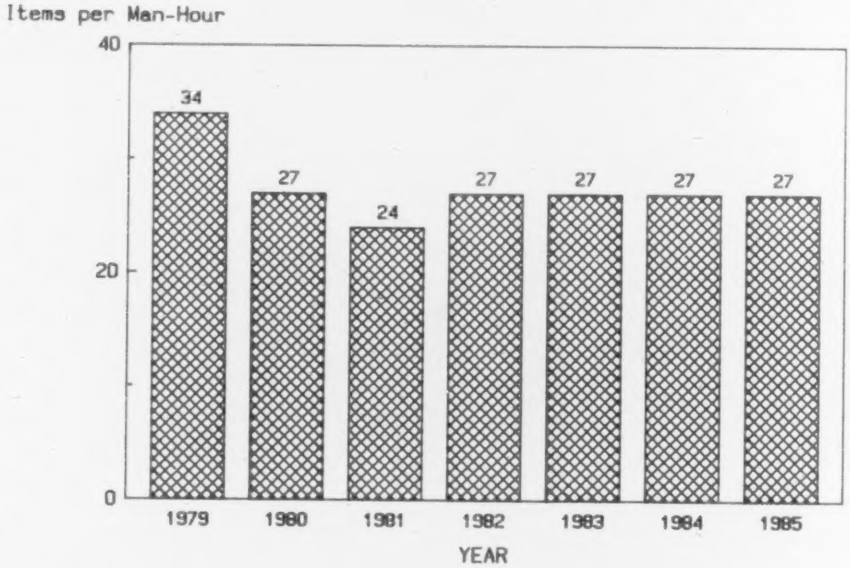
Figure 38
Distribution of Bulk Filing Productivity



Exception and Return Item Processing

Exception and return item processing remained flat at 27 items per man-hour (Figure 39). While the industry has reversed its downward trend in this area, two factors are most evident: First, banks are not processing these items today as well as they were six years ago. Second, when compared to the overall labor productivity of 824 items per man-hour, the labor intensiveness is readily apparent.

Figure 39
Exception and Return Item Productivity



The analysis indicates that return item productivity is commanding significant attention (see comments on supervisory time under Miscellaneous Statistics in the Performance Measurement Statistics section), but productivity is decreasing (Figure 40). In 1985, return item productivity decreased to 50 items per man-hour from 52 items in 1984. Exception item processing productivity has remained steady at three items per man-hour since 1979 (Figure 41). Additional information is provided in Tables 43 through 46 of Appendix B.

Currently, several efforts are underway that address return item issues. One effort involves the work of the Federal Reserve's Return Item Advisory Group. Consisting of representatives from the Federal Reserve, the American Bankers Association, the U.S. League of Savings Institutions, the Credit Union National Association, the Bank Administration Institute, and representatives from all types of depository institutions, this group is attempting to resolve the highly complex issues involving return item processing.

Figure 40
Return Item Productivity

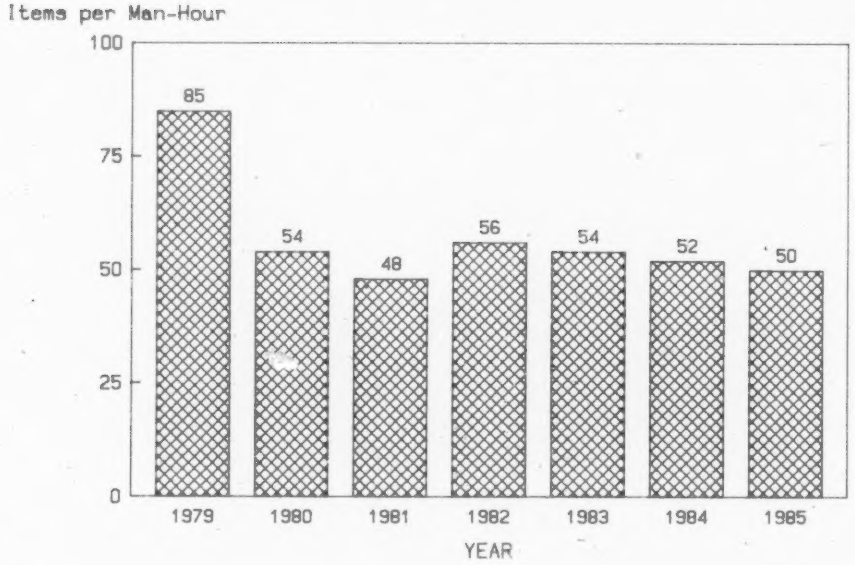
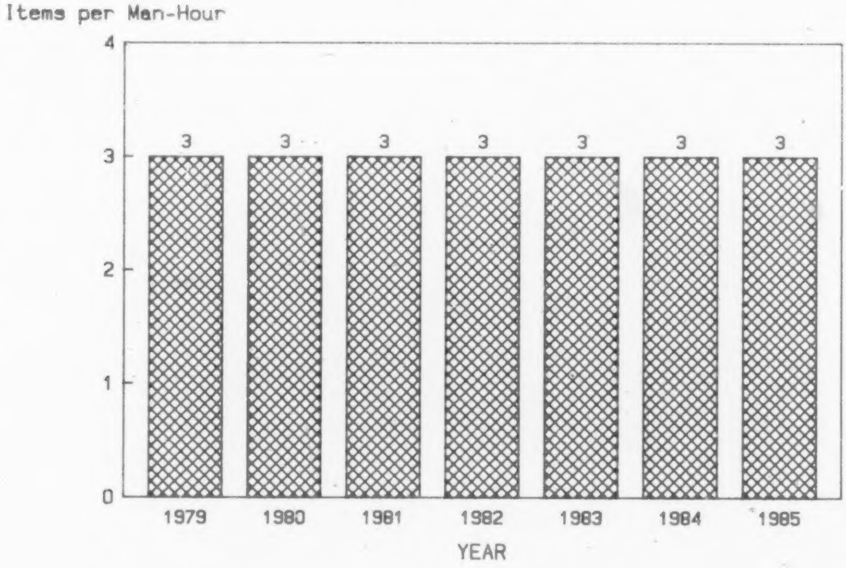


Figure 41
Exception Item Productivity



A second effort is the work in progress of the American National Standards Institute (ANSI) X9B Committee. This committee and its working group have reviewed three different technologies from Burroughs Corporation, IBM, and Recognition Equipment, Incorporated. However, this group has been unable to develop an effective standard.

A third effort was the implementation in October 1985 of Large Dollar Return Item Notification. This requires that for returned checks of $2,500 or more, the payor bank returning the check must send a notification--a wire, a telephone call, or the check itself--to the bank of first deposit by midnight after the date of receipt. The goal is to give the bank of first deposit advance warning that the check is coming so that it can protect itself from potential losses.

The fourth effort is a return item process proposed by Valley National Bank in Phoenix, Arizona. Here, the concept is to use the forward, high-speed collection process. A special envelope would be used for the actual item, and the bottom of the envelope would be encoded with the bank of first deposit's machine-readable identification number. The envelope and the item would then be processed in the normal, forward-processing stream.

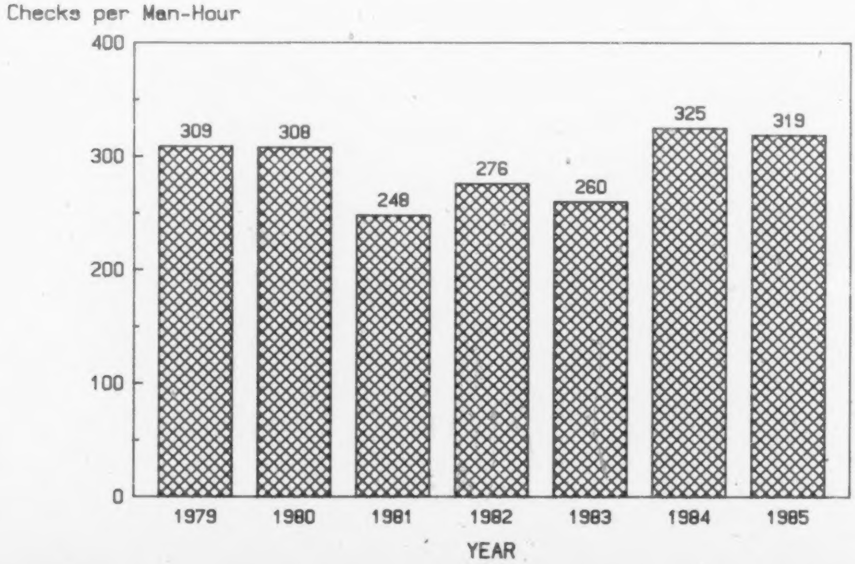
A test of the Valley Bank Proposal began in November 1985, organized by the American Bankers Association and supported by the Federal Reserve. Seventy-five financial institutions are participating, and results are expected in March 1986.

The above-mentioned efforts demonstrate the cooperation within the financial industry for improving the return item process. These cohesive industry efforts are needed to attain goals beneficial to all.

Reject Processing Productivity

The survey indicates that reject processing productivity decreased to 319 items per man-hour in 1985 from 325 items in 1984 (Figure 42).

Figure 42
Reject Processing Productivity

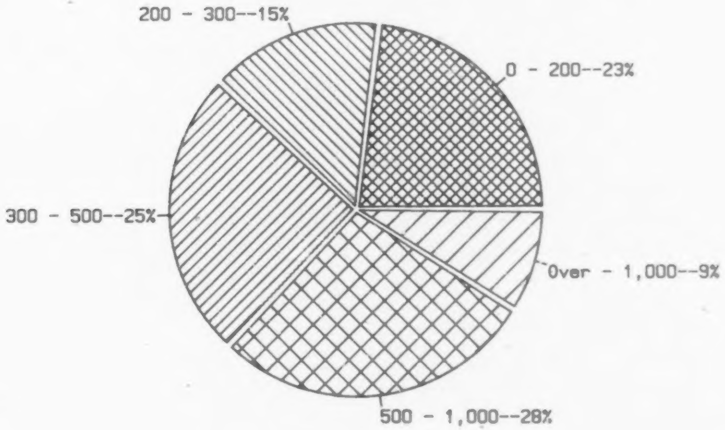


The analysis indicates that geography is not a factor in the survey data changes from 1984 to 1985. The areas are ranked by productivity rate as follows:

Area	Rate
Philadelphia	600
Denver	560
Los Angeles	536
Boston	448
Detroit	353
Dallas	337
San Francisco	335
Atlanta	292
New York	285
Washington, D.C.	284
St. Louis	272
Pittsburgh	263
Chicago	248
Houston	242
Minneapolis/St. Paul	220
Cleveland	199

In 1985, 9 percent of the banks achieved productivity in excess of 1,000 items per man-hour (Figure 43). In contrast, 38 percent of the banks had productivity of less that 300 items per man-hour. This wide variance in productivity can best be accounted for by looking at the differences in how banks process rejects. As expected, those banks that have automated systems have higher productivity than those that rely solely on manual methods. Additional information is provided in Tables 47 and 48 of Appendix B.

Figure 43
Distribution of Reject Processing Productivity



Labor Productivity Summary

As previously noted, overall check processing productivity dropped 2 percent in 1985 as compared to 1984. Most of the individual tasks associated with check processing showed improvement. However, much of the check processing operation still remains labor-intensive and when measured against reader/sorter productivity, those areas show much lower efficiency.

As banking deregulation continues and new competitive pressures are brought to bear on banks by nonbank organizations as well as the Federal Reserve, the challenge for check processing professionals will be to manage check processing better as a business, implementing technology and management skills that will make them more efficient and keep their products competitive in the marketplace.

The nation's payment system has made significant strides in recent years, but much has yet to be accomplished. Whether one chooses to believe the predictions of the Federal Reserve Bank of Atlanta, which project that the volume of checks will start to decrease in the 1990s, or the projections of private industry sources, which predict that the volume of checks will increase in the 1990s, one thing appears to be certain: Checks will not disappear overnight. Recognition of this fact should serve to motivate everyone involved in check processing to do a better job.

In reviewing the trends in check processing, it is estimated by the Federal Reserve Bank of Boston that 41 billion checks were written in 1985. The growth trend is 3 percent-5 percent per year, and this is expected to continue through the early 1990s. MICR is more than 25 years old. Technology is being refined, not invented. Our experience leads us to believe that common sense and the desire for profitability will shape the future.

The business of banking in the future will be information-based, and checks provide the foundation for that information. Bankers will see renewed competition between old and new players. The Federal Reserve will continue its dual role as a regulator and a formidable competitor. The demand for new check-related services and products will afford the financial industry many new and challenging opportunities.

PERFORMANCE MEASUREMENT STATISTICS

In 1978, the first performance measurement statistics were added to the annual survey to provide for a more refined breakdown than had been requested previously of the reasons for rejects. The second reason was to determine the usage and productivity of automated reject processing equipment.

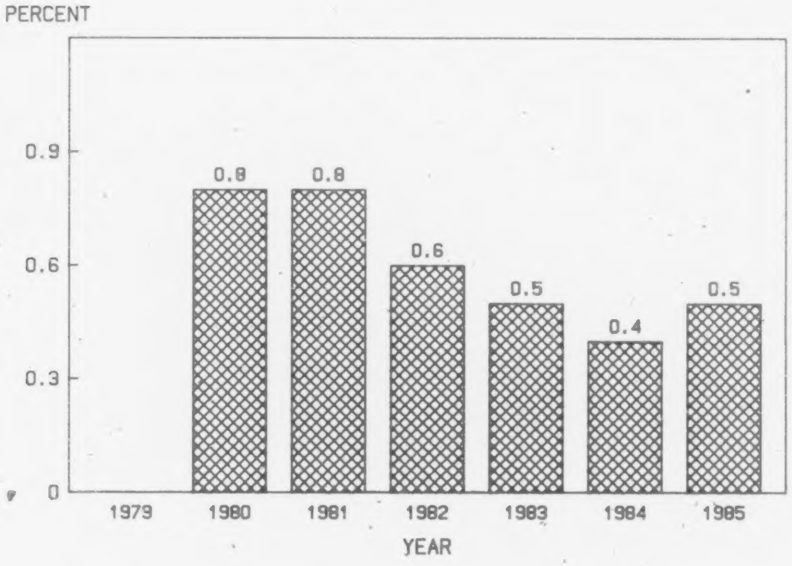
This section of the survey has dealt with automated encoding equipment (1979), high-speed reentry of prime-pass rejects under software system control (1980), miscellaneous statistics on pre-encoded items and a comparison of supervisory to clerical man-hours (1981), and the percent of on-us items (1982). No new information has been requested since 1982.

Reject Reentry

Several banks have the capability of high-speed reentry of prime-pass rejects under software system control. Although the rejected item should be merged properly into its appropriate place in the captured data base, some banks have experienced difficulties in the subsequent balancing operation as a result of using high-speed reject reentry.

In the 1985 survey, 60 of the reporting banks were using this type of system. Figure 44 shows that the average reject rate after high-speed reject reentry fell 25 percent, to 0.5 percent, in 1985 as compared to 0.4 percent in 1984. The analysis shows that 68 percent of the reporting banks had rates below 0.5 percent in 1985 as compared to 65 percent of the banks in 1984. The average number of rejects reentered from the prime pass decreased to 37,359 items in 1985 from 38,183 in 1984.

Figure 44
Reject Rate (After High-Speed Reject Reentry)



Reject reentry productivity increased to 313 items per man-hour in 1985 (Figure 45). In 1984, reject reentry productivity was 217 items per man-hour. The analysis indicates that 42 percent of the banks had productivity rates below 300 items per man-hour (Figure 46), while 16 percent of the banks were able to achieve productivity of more than 600 items per man-hour.

Figure 45
Reject Reentry Productivity

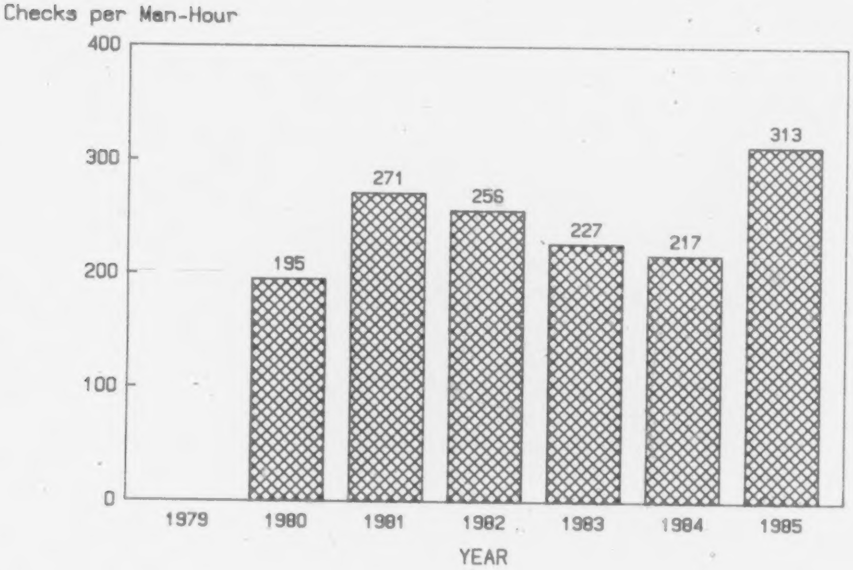
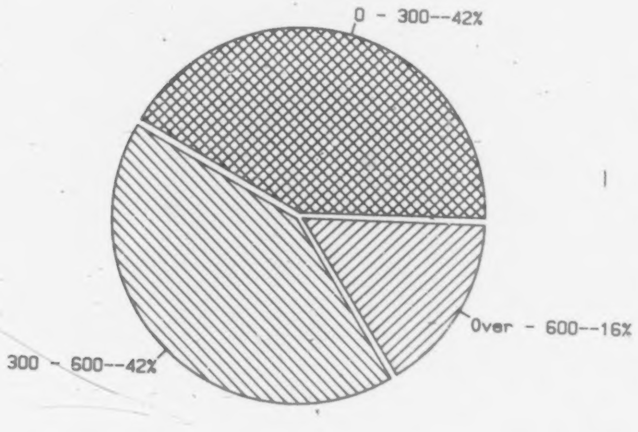


Figure 46
Distribution of Reject Reentry Productivity



Banks that do not use automatic reject reentry usually employ some manual method of modifying their captured data bases. The survey indicates that in 1985 there was a shift in the percentage of banks using manual rather than automated means of handling rejects. The survey shows that in 1985, twenty percent of the banks indicated that they did not use automated systems, as compared to 16 percent in 1984.

With regard to the volume of rejects processed, the survey indicates a slight increase in the percentage of rejects handled by automated systems (Figure 47), to 88 percent, as compared to 85 percent in 1984. Conversely, rejects handled by manual methods decreased to 13 percent in 1985 (Figure 48), down from 15 percent in 1984. In addition, the survey indicates that 59 percent of the banks process more than 90 percent of their rejects through automated reject reentry systems (Figure 49). Additional information is provided in Tables 49 through 57 of Appendix B.

Figure 47
Automated Reject Processing

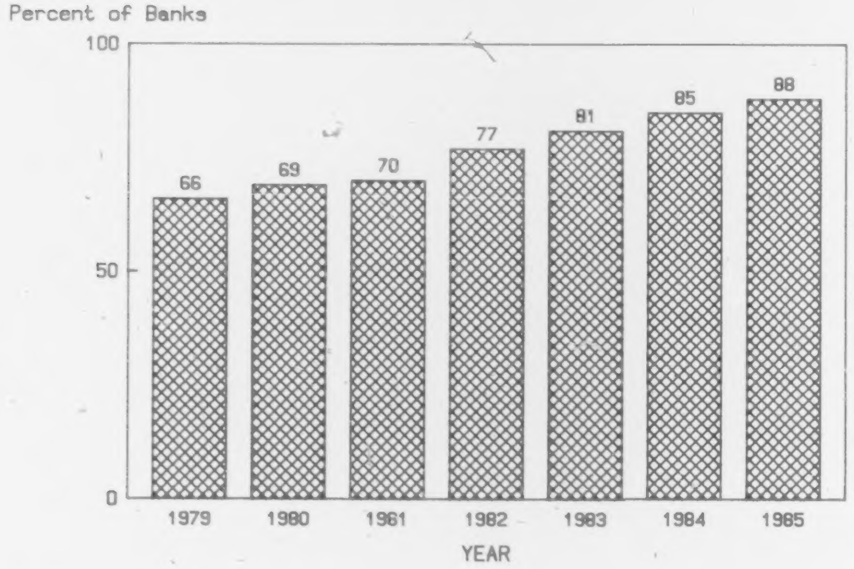


Figure 48
Manual Reject Procesing

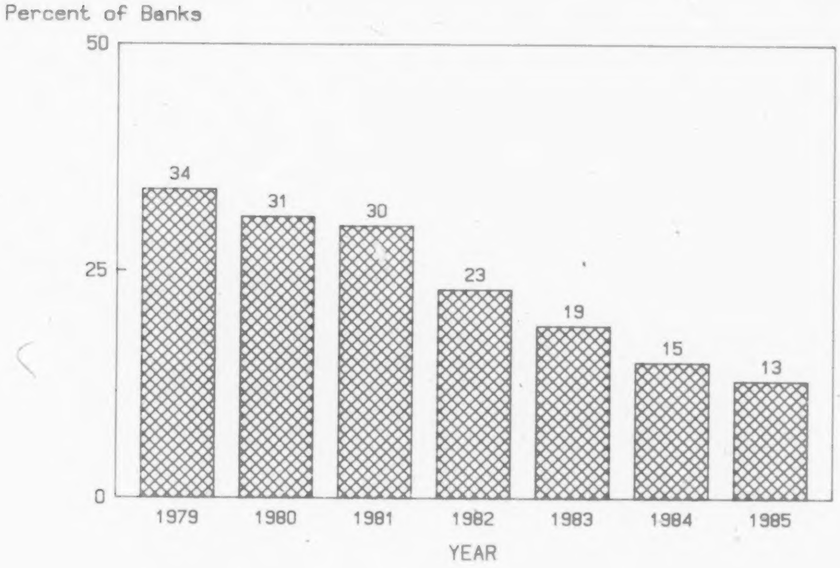


Figure 49
Distribution of Automated Reject Processing

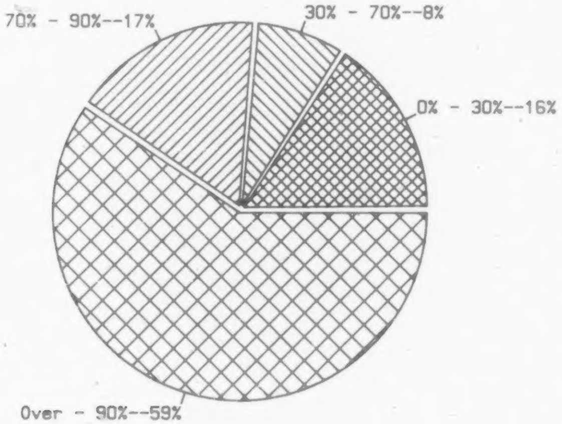
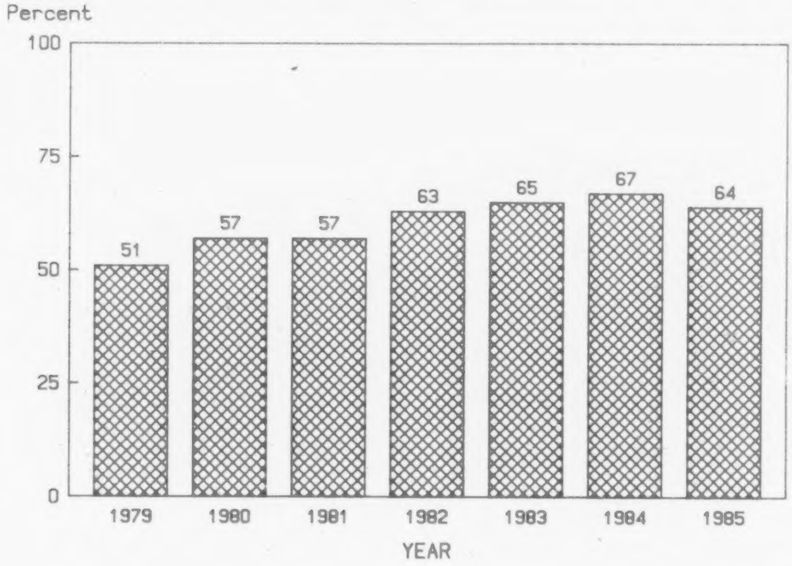


Figure 50 shows that the percent of incoming items that have been encoded decreased in 1985, to 64 percent, from 67 percent in 1984. A wide variety of factors influence the mix between encoded and unencoded items. Such things as new lock-box business, cash letter business, technological developments, and market experiments all contribute to the growth or decline of preencoded items. Among the activities occurring in some parts of the country are tests in which retail customers encode the dollar amount of both their cashed and deposited checks. If these market experiments become commonplace, the percent of incoming items encoded can be expected to increase rather dramatically. In addition, encoding by retail customers may have an adverse impact on the quality-control activities of banks. Additional information is provided in Table 58 of Appendix B.

Figure 50
Percent of Incoming Items Encoded



In 1985, the survey observed a slight increase in the percent of supervisory time to clerical man-hours, to 13 percent (Figure 51), up from 11 percent in 1984. However, further analysis revealed that within the various tasks there were shifts in the use of supervisory time as bank management reacted to quality issues and productivity concerns. Figure 52 shows that supervisory time decreased in the exception item processing area. Figure 53 shows that supervisory time decreased in the microfilming area, and Figure 54 shows an increase in supervisory time in the return item area.

The encoding function received 10 percent of the supervisory time in 1985 (Figure 55). Cash letter makeup increased to 15 percent in 1985 (Figure 56). Additional information is provided in Table 59 of Appendix B.

Figure 51
Supervisory Time to Clerical Man-hours (All Functions)

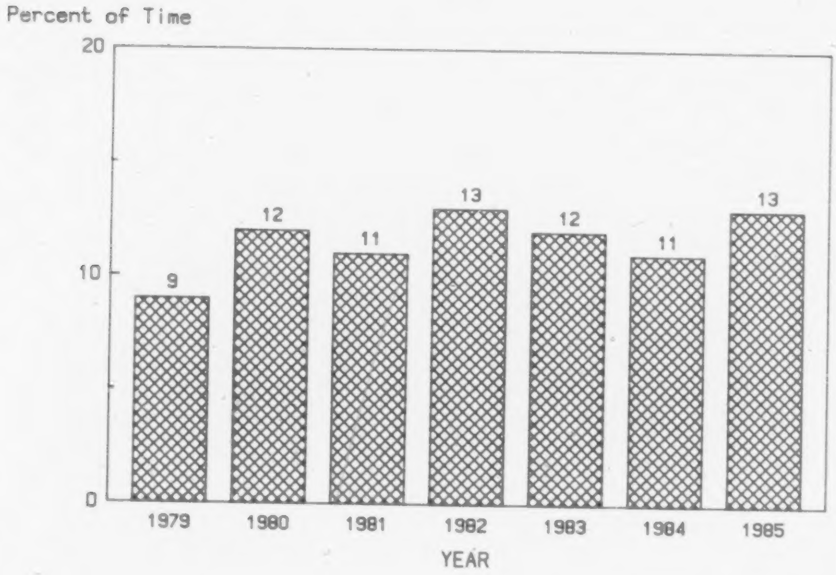


Figure 52
Supervisory Time to Clerical Man-hours
(Exception Item Processing)

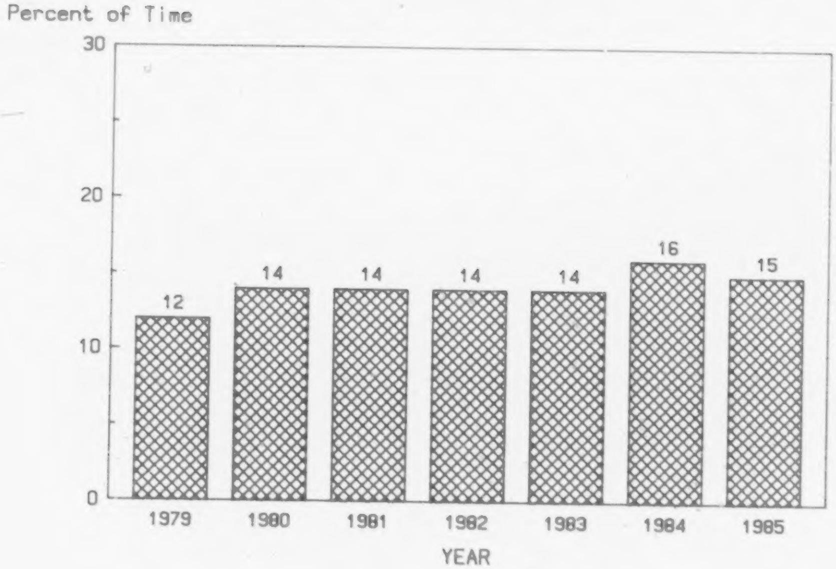


Figure 53
Supervisory Time to Clerical Man-hours (Microfilming)

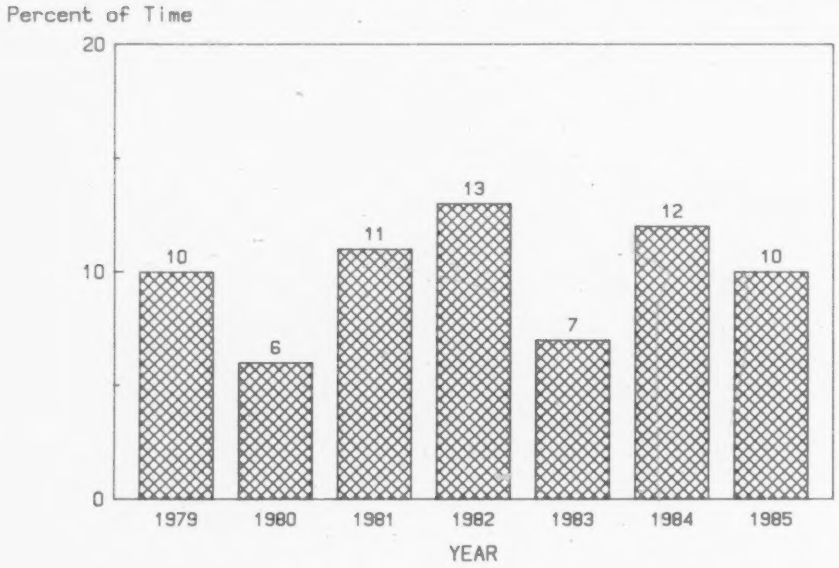
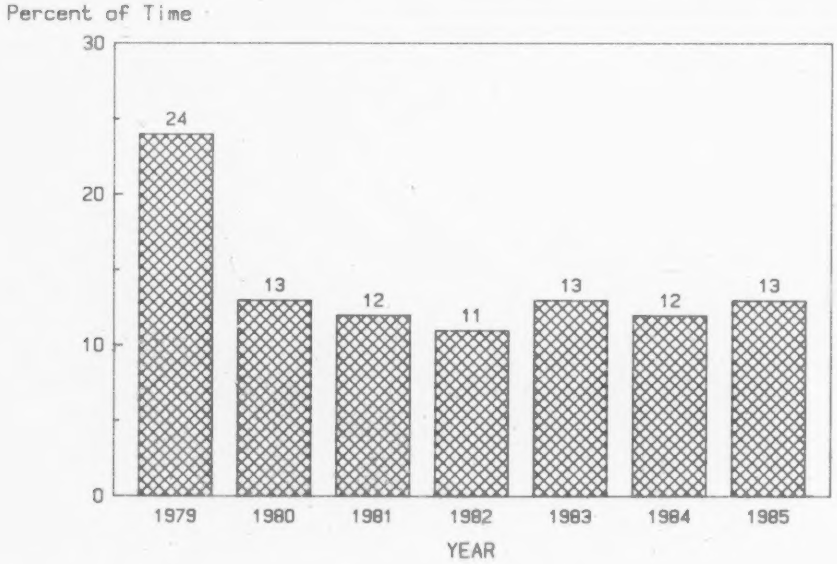


Figure 54
Supervisory Time to Clerical Time (Return Items)



The percent of on-us items as compared to total items processed declined slightly, to 41 percent in 1985, from 42 percent in 1984. Additional information is provided in Table 60 of Appendix B.

Figure 55
Supervisory Time to Clerical Time (Encoding)

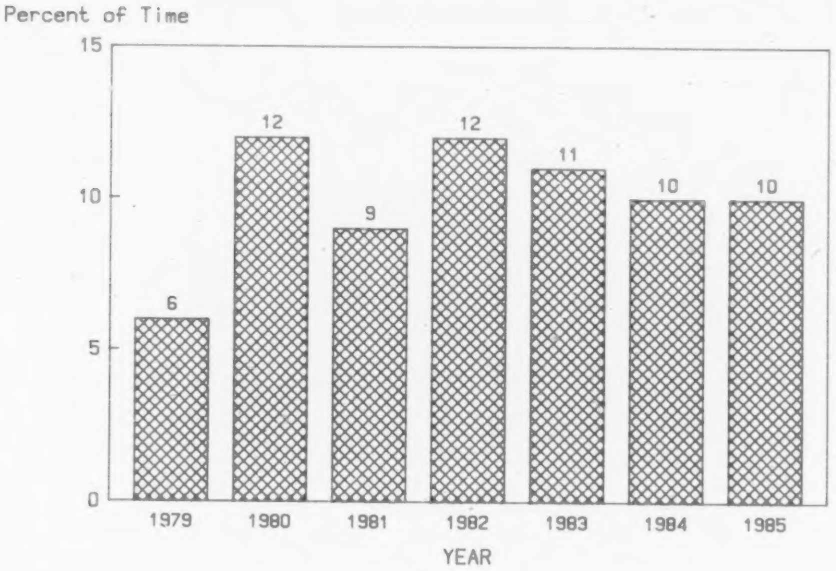
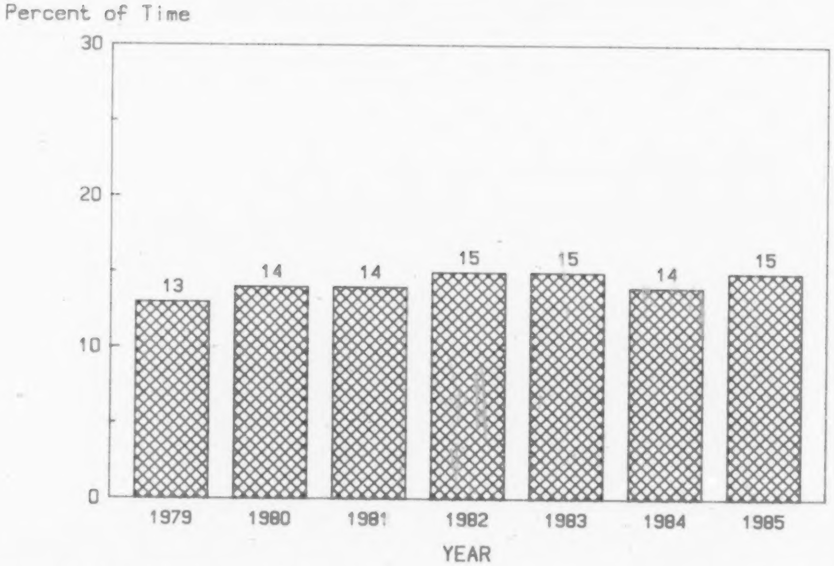


Figure 56
Supervisory Time to Clerical Man-Hours (Cash Letter Makeup)



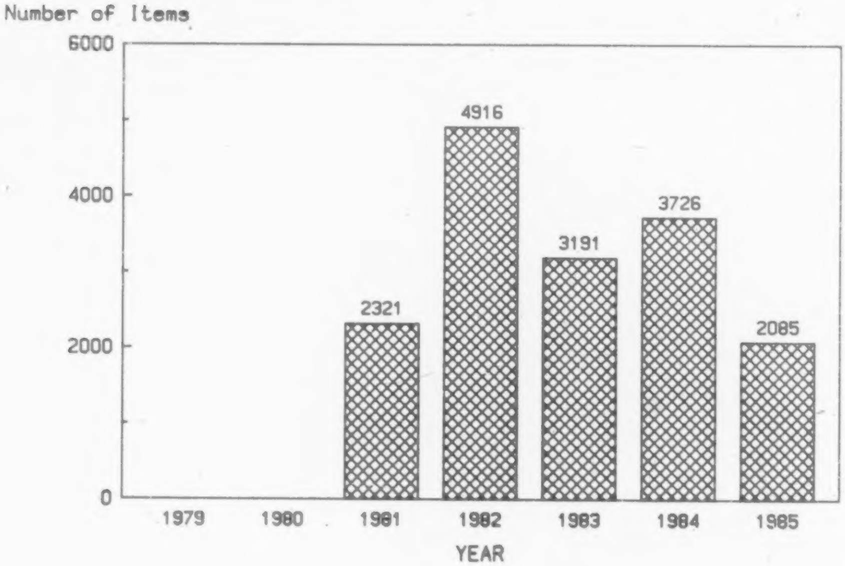
Our survey indicates payable-through drafts as a percent of total items processed decreased by 27 percent in 1985, to 2.7 percent, as compared to 3.7 percent in 1984. This may indicate an emerging trend in which corporate customers use more efficient, electronic means to move funds. Additional information may be found in Table 61 of Appendix B.

CHECK TRUNCATION AND ELECTRONIC CHECK PRESENTMENT

As banks continue to search for more profitable and productive means of providing noncredit services, check truncation activities can be expected to gain wider acceptance. Since the banking industry appears to be on the threshold of dramatic movement in this direction, the survey continues to measure the truncation statistics. Detailed definitions of the five types of truncation can be found in Appendix A.

In 1985, the responding banks indicated that they kept 2.1 million checks in safekeeping at the payor bank during the survey week (Figure 57) as compared to 3.7 million checks for the same period in 1984. The annual number of checks in safekeeping is actually higher than our survey data indicate for two primary reasons. First, the survey is a sample of one week, and, second, two of the leading banks in check safekeeping did not release check safekeeping figures in this year's survey.

Figure 57
Check Safekeeping at Payor Bank (In Thousands)

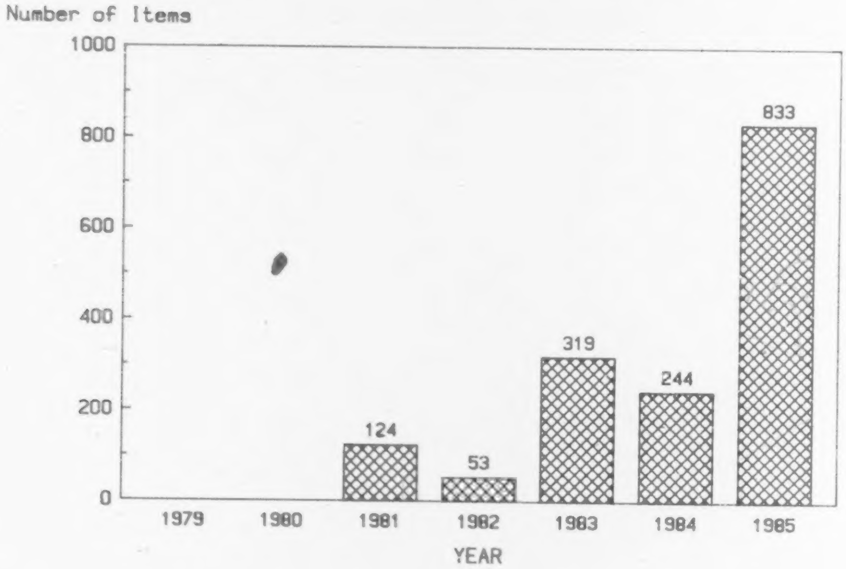


As the trend in this area is analyzed in conjunction with not only the statistical data but other industry information and announcements, it is believed a dramatic increase in check safekeeping will occur in 1986, because several major banks have announced their intention to implement check safekeeping bankwide to both retail and commercial customers. In addition, several banks that have been offering check safekeeping to retail customers have indicated that they are ready to offer this service to corporate accounts.

An analysis of electronic check presentment showed a significant increase in the number of items, from 244,000 items in 1984 to 833,000 items in 1985, for the survey week (Figure 58). More banks are realizing the importance of communicating the day's clearings total to transit banks for investment purposes. One of the most effective ways of doing this is electronic check presentment. As this method becomes more common and available, it will improve the efficiency of the check collection system.

Additional information is provided in Table 62 of Appendix B.

Figure 58
Electronic Check Presentment



APPENDIX A
1985 BANKER COMMENTS

The following comments were submitted by bankers who participated in the 1985 BAI survey. The purpose of this section is to provide bankers with an overview of the current environment in check processing operations. Therefore, references to specific organizations, vendors, or equipment were omitted. However, comments concerning working relationships with Federal Reserve Banks and other financial institutions that are pertinent to the overall functioning of the check collection system have been included to promote the cooperative efforts for improvement by all participants.

Personnel

"We continue to have a high degree of turnover in the proof area. More part-time operators are being used to replace full-time staff."

"Training is done at the department level. Handbooks containing job descriptions and position functions are prepared for each department, allowing employees to understand exactly what is expected. In addition, terminal training programs are being utilized. Employees receive handbooks, terminal training, and on-site classroom instruction. Once completed, measurable goals and production levels are set. These goals are then measured against those of one's peers."

"Turnover was up significantly in 1985."

"We have recently revised our encoding machine operator's training program, a self-administered, interactive program designed to standardize training and cut training time and costs. We also offer periodic keyboard training classes designed to increase productivity, and periodic reviews of software applications to keep personnel aware of changes and/or modifications."

"Personnel levels have stabilized due to less mergers."

"1984 turnover was 7 percent. 1985 turnover thus far is 8 percent."

"Turnover is 40 percent less for same period of 1985 compared to 1984. The higher unemployment rate contributes to more qualified applicants, which reduces training time."

"We experienced a merger this year. By moving all the operations staff into one building, we were able to decrease staff."

"Part-time staff contributes to high turnover."

"Productivity has risen in proof and encoding due to improved training efforts, which have also reduced turnover."

"Training and turnover continue to present problems. Because our local labor market confines us to primarily a high school labor market, we experience a 40 percent to 50 percent turnover annually in the proof department. We have been more successful recently in getting a stable base of employees by hiring housewives. This is probably due to the state of the economy."

"The continuing challenge in operations areas is to be able to attract, and adequately train, motivate, and retain topnotch personnel. We have increased the usage of part-time employees, which has positive as well as negative effects. Use of part-time employees produces lower personnel costs for the corporation and offers the operating area greater flexibility in scheduling. On the other hand, turnover rates increase because of the necessity of continual training, hence a lower experience level. Finally, a part-time employee has less reason to exhibit loyalty to the company."

"We have had problems replacing personnel due to the low level of unemployment in this area and our requirements being mostly for the night shift."

"We have plans to develop a training program for the reconcilement/balancing group. An incentive pay program for proof encoders was implemented this year. It has been beneficial in weeding out the marginal and poor-performing employee."

"Since our 'Productivity Pay System' was implemented, we have had an increase in productivity and less turnover."

"Turnover has continued at low levels (11 percent). A continued emphasis has been placed on training and cross-training personnel, more thoughtful placement of people, and added experience."

"Mergers and acquisitions have necessitated an increase in personnel. Full-time paying, filing, and on-us check processing employees have been replaced by part-time employees."

"Turnover in the operations division for the first nine months of 1985 was 18.5 percent. For the same period in 1984, turnover was 13.4 percent."

"Due to the large quantity of work, our employees are not getting the same quality of training."

"Our Keyboard Training Program using audiovisual aids is in use and has helped productivity in the use of our proof machines."

"The adjustment department training has changed in that each desk handles a dollar range of exceptions. It is necessary for each clerk to know the overall department functions."

"The introduction of many new tasks for centralized bookkeeping has required that official and nonofficial staff receive training to support the new tasks and to understand better the importance of their responsibilities. The technical knowledge required of item processing staff has increased substantially."

"We have shortened our training period by increasing our trainees' daily working hours. There was a 40 percent decrease in turnover in 1985 versus 1984."

"An in-house campaign has been started to increase job awareness through an interdepartment Ambassador Program."

"Increased competition among couriers has lowered transportation costs."

"Additional efforts were spent during fiscal year 1985 towards cost analysis. As this expense becomes more significant, it will continue to warrant reviewing alternatives as to how we utilize courier services."

"Our bank has been looking at transporting cancelled checks by air instead of ground couriers. We hope to have at least 50 percent of our out-of-state banks' documents flown in to our processing site by the end of this year."

"We increased the transportation network to speed the flow of work and make available all processable items."

"The bank utilized more contract transportation versus in-house."

"The operations center was relocated and we are experiencing increased transportation time to the Federal Reserve Bank and the airport. These changes necessitate reevaluating our cut-off time frames to avoid missed deadlines."

"Couriers continue to get more competitive, opening up new check-clearing opportunities."

"We eliminated the bank's transportation network in favor of a commercial courier."

"The bank's own couriers transport the branch and (where possible) the transit items, primarily because local couriers cannot give us the flexibility we require at a reasonable cost. We also pick up our incoming work at our local RCPC to allow us to process in an earlier time frame."

"Heavy traffic conditions have caused delays between branches and the processing center."

"We have initiated more direct sends to RCPC's, HDGS endpoints, and have taken advantage of numerous package plans in order to improve availability and curtail item charges."

"Chartered air transportation has been improved, while continual problems exist on commercial airlines."

"The utilization of correspondents for check clearing has increased. Some direct-send work has been shifted back to the local Fed to take advantage of high dollar group sorts."

"The annual air and ground transportation expense in 1985 is projected to be 17 percent below the total annual 1984 expense. This transportation cost is only related to transportation expenses to collect transit checks when the bank pays its own transportation expense to go direct to endpoints."

"We continue to monitor all runs for expediency and pursue every alternative to reduce the impact of Fed pricing."

"Better communication exists between bank personnel and the courier staff. We are committing to more advanced and expensive transportation, such as helicopters and jets."

"High dollar group sorts have required new air transportation."

"Alteration of the courier routes in 1985 has improved work arrival times to the operations center."

"The transportation availability has dramatically increased in 1985. We are now able to make later deadlines at our correspondent banks as well as lower our overall transportation costs."

"We presently use a helicopter for transporting our work to the Fed during peak times and transporting our branch work to the Operations Center. This has expanded our processing window and improved our release time."

"Utilization of a mainframe-driven transportation model enabled us to reduce expenses and improve workflow availability to proof operations. Less than 25 percent of our work is now received after 5:00 p.m., an improvement of 20 percent."

Rejects

"Rejects continue to be a problem. We just went into bulk filing and found we spend about three man-hours each day interfiling rejects into our statement-sorted items before running them through our statement stuffer."

"Our reject rate usually goes up in the summer months, and we are working on a project to bring this rate down."

"We installed additional on-line reject reentry equipment."

"Our reject rate has remained constant over the past year, with an average of 1.7 percent for inclearings and 1.45 percent for transit work."

"Our reject costs (per item and deferred availability) still do not justify reject repair."

"The installation of new proof machines has improved the reject rate by .4 percent."

"The bank has addressed some vendors who have dropped their paper standards and requested our customers to improve paper quality."

"Improved systems and software have decreased reject rates."

"We upgraded our IPS configuration, and the reject rate was lowered as a result."

"The reject rates we are experiencing are higher due to the age of encoding equipment and the poor encoding work of our customers."

"Full-field encoding should be done on a national scale to reduce the cost of processing in each check-clearing shop."

"Standardized check sizes and good quality control on MICR print would reduce reject rates for the entire industry."

"We continue to use a manual, on-line, reject reentry process with subsequent repair of items using check-saver envelopes. Our reject rates are coming down due to an all-encompassing quality-control effort,"

"Rejects due to trancode have increased because of the increased use of five-digit trancodes on credits also containing T/R numbers."

"We continue to use a combination of automated (CRT) and manual processing (document carriers and reject stripping machine) to process and clear our transit rejects."

"The trend for large commercial customers to do their own encoding has produced an increase in the reject rates and research associated with these accounts."

"Rejects are higher this year because of an account number conversion with our affiliates and the increase in volume."

"Reject rates on our incoming cash letters are rising primarily because other banks are using reject repair devices that do not repair the account number field."

"We are now charging our pre-encoding customers $.10 per rejected item and have noticed a slight decrease in rejects."

"Greater awareness has been established throughout the item processing department, improving overall quality control."

Outstanding Exception Items

"Counter checks are causing problems with bulk file processing."

"The biggest delay is in getting reimbursed for photocopies and originals that have been paid."

"A very labor-intensive process!"

"The number of outstanding exceptions has dropped significantly due to a more experienced staff, new management, and an improved relationship between processing centers."

"Exceptions have increased due to an acquisition and to major turnover in several regional proof departments."

"We automated our adjustments system to reduce turnaround time in resolving outstanding exceptions. This package will automate record keeping and improve research and adjustment service to customers."

"Such items were reduced due to staffing education and tighter control over the processing area."

"Adjustments handled through money center banks continue to be a problem."

"Volume of outstanding exception items has grown at a rate equivalent to our growth in item processing."

"The volume increased substantially from 1984 as a result of centralizing the research function in the adjustment department."

"Mergers and acquisitions have increased the volumes."

"It appears many banks are having problems with Fed exceptions."

"The cash letter difference account research has increased due to an increase of free items."

"Exception items in our adjustments department are kept under better control due to the new method of range responsibility."

Returns and Adjustments

"We experienced an increase due to a merger."

"The equipment is constantly monitored to achieve the highest productivity and to reduce adjustments."

"Returns are now processed in a semi-automated environment, using high-speed sorting and cash letter generation. We alsc have on-line posting of chargebacks. Our biggest problem is researching items to determine the source of deposit. The problem should be resolved with the installation of an 'all items' file and retrieval system."

"An exceptional number of checks are received that have been stripped and contain the wrong bank number. More work is required to process a return item improperly endorsed or misrouted."

"More changes are anticipated in Reg J during 1986."

"Reg J changes have added new importance to the need for standardized endorsements."

"We installed a telephone recording device for large-item notification documentation."

"We are in the process of automating return item functions and adjustments to general ledger suspense."

"Photocopies processed as cash items continue to be a major area of concern for us. We are a major processor of high-volume medical accounts and receive a large number of this type of adjustment. A high portion of those photocopies are already paid, and the difference is held by a third-party bank."

"Staff has been increased to maintain control and enhance efficiency."

"Phone inquiries have nearly doubled due to mergers and acquisitions. ACH returns to the Fed have been automated. In the future we intend to send adjustment information to other banks via wire."

Automated Reject Processing

"Automated reject repair machines have enabled us to reduce clearing time substantially on rejected items."

"Credit from the Fed should be deferred for items sent out of the encoding bank where the full field repair was not done. The account number field should be mandatory."

"Transit rejects are now processed through high-speed reject reentry."

"We are currently using a strippette machine, but are considering an automated system."

"Additional on-line reject reentry equipment was installed."

"In 1986 we will be upgrading our reject reentry equipment. We expect an increase in throughput along with decreased system downtime."

"We continually monitor this processing to ensure that our performance standards are being met. Regular preventive maintenance is a must, as well as timely resolution of any system failures."

Equipment and Systems Problems

"All new proof machines were installed and equipment problems were reduced."

"Until we upgrade our system, we are at maximum capacity."

"We experienced problems with SPO's by the reader/sorters because of high downtime. The cable has been changed on the SPO's, and the problem was corrected."

"We dropped our service contract and went with a third-party vendor, resulting in improved service."

"The merger changed processors for us. All the existing equipment had to be enhanced in every application to equate closely to the same types of service we were accustomed to.

"The division is in the process of identifying alternatives to the IBM 803 machine because IBM will be phasing out all service for these machines in 1986."

Security

"We installed a card access system for entering the building after hours."

"All bags are securely locked by branch personnel, couriers do not have a key, and the bags are unlocked by proof personnel. The work is accounted for by the receipt and check-off systems personnel."

"Current security needs for the item processing computer systems are being reviewed."

"A combination-lock entrance door has been installed."

"Our security system includes a disaster program that will allow us to process our work outside the bank should existing resources fail."

"Security of PC equipment and files has increased with usage."

Regulatory Impacts

"Reg J has increased our equipment expenses due to wire and phone notifications."

"Multi-parish banking has reduced our incoming cash letter volume due to bank mergers."

"Reg J has increased recordkeeping, but works well with the Fed on-line terminal."

"Operationally, we must be able to support the development of new instruments to attract and retain customers after the removal of interest rate ceilings."

"We anticipate the Fed lowering the dollar level of return item notification to $100 in 1987. This will increase the time allocation and will enhance the use of automated packages currently on the market."

"Reg J changes warrant a nine-digit FR/ABA number in the endorsement, which is an additional expense to banks depositing at the Fed."

"Reg J changes were welcome and long overdue. There are some inconsistencies, however, between local clearinghouse rules and items bypassing the Fed."

"Compliance with Reg J appears to be a complex issue due to the general language of the legislation. Financial institutions have apparently adopted a variety of measures, thus prohibiting an industry consensus on what constitutes compliance."

"HDGS opportunities have given us some financial benefit. However, each time things like this, as well as new prices, new ACH system pricing, and so forth, come about, we must spend a considerable amount of time reviewing them to make sure what benefits we can achieve."

"Inconsistent Fed policies require significant management time to analyze and implement necessary procedures."

"Greater use of direct sends to the Fed, upstream correspondents, and our own correspondents have decreased our costs."

Check Truncation

"Plan to begin this the first of next year."

"This is still not commonplace in the commercial banking environment."

"All truncated items are now 'killed' daily, rather than at the cycle sort level. The use of the truncation indicator digit has been discontinued. All items are killed by accessing a file."

"Truncation continues to grow as we use price incentives, but our research costs have risen proportionately."

"We now offer lower-cost truncated checking accounts. The acceptance level is unknown due to its recent implementation."

"A November 1984 campaign to convert accounts resulted in an increase of 57 percent in nonreturn volume."

"Our bank has safekeeping for personal accounts only, and it is not possible to track the dollar amount of these items on a daily basis."

"Approximately 51 percent of our consumer checking accounts are on safekeeping, which results in a substantial reduction in postal charges. Timeliness of our statement rendering processes has also improved greatly."

"The bank began check truncation in July with employee accounts and student checking accounts. This service will be offered to all accounts beginning in late fall."

"We currently are planning to implement truncation on employee and money market accounts."

"We discontinued all forms of truncation in 1984."

"The bank uses electronic check presentment for processing items for S&L's."

"We are experiencing an increase in the number of accounts that truncated."

"We have had our truncation for two years. The adjustments department has had an increase in photo requests, causing additions to personnel and machines."

Microcomputer Applications

"The bank has a strong commitment to microcomputers."

"Senior management is not committed to micros. We continue to be frustrated by all the software available for adjustments and float decision making and reporting when we lack the training , vendor support, and ability to de-bug existing programs."

"Applications to measure proof operator productivity and a transit analysis program are used."

"Clearinghouse exchange and settlement as well as capacity tracking and modeling are two of the applications that have been installed."

"A clearing optimization model is used on the IBM-AT, and we maintain volume, productivity, and statistical reports on the PC."

"We continue to expand our use of microcomputers in the check processing environment."

"Very good opportunities exist for enhanced control and increased efficiency. We are in the process of creating a network of micro systems and work stations. Major applications have been and will be programmed for the system."

"All areas are converting a variety of functions to personal computers (i.e., management reports, job standards, availability sheets, point sheets, and daily figures from check processing)."

"The PC continues to be a great asset for float analysis and operations reporting."

Miscellaneous

"We implemented bulk filing in 1985 on commercial accounts with volume of 200 or less items per month. Planning is being done to automate return items in 1986. Internal audit procedures are being scrutinized more closely."

APPENDIX B
1985 SURVEY TABLES 1 THROUGH 62

Table 1

Survey Respondents by Geographic Area

Area	1980	1981	1982	1983	1984	1985
Boston	12	10	11	6	8	12
New York	17	14	16	19	16	11
Philadelphia	24	18	16	15	12	13
Pittsburgh	5	5	5	4	2	3
Washington, D.C.	9	9	8	9	8	7
Atlanta	21	18	25	16	18	23
Chicago	11	12	12	11	10	14
Cleveland	11	13	11	6	9	6
Detroit	9	9	8	4	4	7
Minneapolis/St. Paul	0	5	4	5	0	2
St. Louis	10	11	12	9	8	9
Dallas	6	7	7	4	5	7
Houston	8	5	9	5	3	8
Los Angeles	10	7	10	11	8	6
San Francisco	11	9	11	10	9	7
Denver	5	5	5	4	4	6
Total banks	170	157	170	138	124	141

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*The Outlook for the Nation's Check Payment System: 1970-1980, Arthur D. Little, Inc., Cambridge, Massachusetts, December, 1970.

Table 2

Percent of Rejects on Reader/Sorter Equipment by Area

Area	1980	1981	1982	1983	1984	1985
Boston	2.1%	2.0%	1.6%	1.4%	1.4%	1.8%
New York	2.2	2.7	1.8	2.1	2.2	1.8
Philadelphia	1.9	2.3	2.1	1.7	1.8	1.8
Pittsburgh	1.8	1.9	1.4	1.3	1.2	1.1
Washington, D.C.	2.1	1.4	1.5	1.3	1.5	1.3
Atlanta	1.9	1.6	1.7	1.5	1.4	1.6
Chicago	1.7	1.8	1.8	1.4	1.4	1.4
Cleveland	1.9	1.8	1.7	1.5	1.2	1.2
Detroit	1.8	1.5	1.5	1.6	1.2	1.5
Minneapolis/St. Paul	*	1.8	1.2	1.1	*	.8
St. Louis	2.0	1.7	1.4	1.2	1.3	1.4
Dallas	1.8	2.2	1.7	1.5	1.3	1.4
Houston	2.1	2.7	1.8	1.1	1.1	1.4
Los Angeles	2.0	1.5	1.6	1.5	1.7	1.3
San Francisco	1.6	1.7	1.1	1.1	1.2	1.2
Denver	1.7	1.8	1.2	1.2	1.4	1.2
Total banks	158	153	163	133	121	138
Average	1.9%	1.7%	1.5%	1.5%	1.5%	1.4%

*No respondents.

$$\frac{Q30}{Q7} \times 100$$

Table 3

Distribution of the Reject Rate

Reject Rate	1980	1981	1982	1983	1984	1985
0% - 1.0%	10	17	18	26	30	25
1.0% - 1.5%	38	40	61	61	45	62
1.5% - 2.0%	40	48	47	32	29	39
2.0% - 2.5%	38	21	26	8	10	8
2.5% - 3.0%	21	11	5	4	3	1
3.0% - 3.5%	11	9	2	1	1	0
3.5% - 4.0%	0	3	2	1	1	2
Over 4.0%	0	4	2	0	1	1
Total banks	158	153	163	133	121	138
Average	1.9%	1.7%	1.5%	1.5%	1.5%	1.4%
Median	1.8%	1.7%	1.5%	1.4%	1.4%	1.4%

$$\frac{Q30}{Q7} \times 100$$

Table 4

Percent of First-Pass Rejects by Type and by Area

Transit Number

Area	1980	1981	1982	1983	1984	1985
Boston	21%	14%	16%	13%	14%	14%
New York	19	14	16	11	12	12
Philadelphia	14	11	14	11	13	14
Pittsburgh	17	11	9	13	17	11
Washington, D.C.	27	13	20	19	15	14
Atlanta	16	19	19	20	16	15
Chicago	21	23	19	16	13	14
Cleveland	18	18	13	21	17	15
Detroit	18	18	9	11	12	14
Minneapolis/St. Paul	*	17	14	10	*	7
St. Louis	18	16	19	17	15	14
Dallas	16	27	23	18	4	28
Houston	27	12	16	19	14	16
Los Angeles	16	26	16	20	9	11
San Francisco	13	12	9	17	16	17
Denver	22	21	14	13	17	21
Total banks	127	116	139	105	91	107
Average	18.6%	15.1%	15.3%	15.5%	14.2%	14.5%
Median	17.1%	15.2%	14.3%	15.2%	13.9%	14.6%

*No respondents.

$$\frac{Q24}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Account Number

Area	1980	1981	1982	1983	1984	1985
Boston	20%	20%	15%	26%	23%	18%
New York	15	15	16	29	30	24
Philadelphia	22	16	17	14	15	16
Pittsburgh	16	20	20	33	22	20
Washington, D.C.	15	21	19	19	19	27
Atlanta	17	20	15	20	19	16
Chicago	14	13	14	13	13	11
Cleveland	21	18	22	14	17	20
Detroit	17	20	19	13	12	9
Minneapolis/St. Paul	*	13	11	9	*	6
St. Louis	10	10	12	12	12	12
Dallas	13	14	18	19	24	15
Houston	12	11	13	9	3	18
Los Angeles	23	30	26	20	10	13
San Francisco	15	19	8	13	12	16
Denver	16	26	18	25	23	19
Average	15.7%	16.3%	16.0%	19.5%	18.1%	16.5%
Median	17.3%	17.8%	16.4%	19.1%	18.4%	18.5%

*No respondents.

$$\frac{Q25}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Dollar Amount

Area	1980	1981	1982	1983	1984	1985
Boston	45%	40%	45%	39%	39%	41%
New York	39	30	33	38	31	31
Philadelphia	35	34	28	37	44	39
Pittsburgh	37	28	23	24	33	33
Washington, D.C.	34	23	28	26	25	25
Atlanta	40	33	32	30	25	24
Chicago	40	41	39	44	48	51
Cleveland	40	39	43	37	32	35
Detroit	45	35	32	38	47	44
Minneapolis/St. Paul	*	31	46	39	*	74
St. Louis	47	41	37	43	42	45
Dallas	35	49	39	47	51	40
Houston	45	41	30	38	31	31
Los Angeles	43	28	36	32	21	34
San Francisco	39	40	31	35	33	34
Denver	45	26	36	36	31	37
Average	41.5%	35.1%	34.0%	35.7%	33.1%	35.3%
Median	39.5%	33.3%	34.6%	34.4%	32.4%	33.2%

*No respondents.

$$\frac{Q26}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Serial Number

Area	1981	1982	1983	1984	1985
Boston	4%	4%	8%	7%	8%
New York	3	3	5	8	3
Philadelphia	5	5	5	8	10
Pittsburgh	5	3	2	5	3
Washington, D.C.	3	3	5	6	5
Atlanta	6	4	4	7	3
Chicago	4	5	6	6	6
Cleveland	5	5	8	5	9
Detroit	3	4	9	5	5
Minneapolis/St. Paul	2	3	3	*	0
St. Louis	4	3	6	7	7
Dallas	0	2	3	9	7
Houston	8	4	13	8	2
Los Angeles	4	6	5	4	3
San Francisco	3	2	5	4	5
Denver	5	6	5	5	5
Average	4.8%	5.0%	5.3%	6.2%	5.4%
Median	3.1%	3.0%	4.0%	4.6%	3.9%

*No respondents.

$$\frac{Q27}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Trancode Misread

Area	1981	1982	1983	1984	1985
Boston	4%	4%	5%	5%	5%
New York	7	5	4	2	5
Philadelphia	12	9	8	9	11
Pittsburgh	7	11	6	7	5
Washington, D.C.	12	8	10	12	13
Atlanta	6	7	8	8	7
Chicago	3	6	4	3	4
Cleveland	9	9	4	4	4
Detroit	3	3	2	1	5
Minneapolis/St. Paul	10	9	5	*	1
St. Louis	10	6	7	7	5
Dallas	3	6	5	13	3
Houston	9	3	15	6	6
Los Angeles	6	8	10	2	5
San Francisco	7	4	8	6	6
Denver	9	15	9	11	9
Average	6.6%	6.8%	6.6%	5.5%	6.3%
Median	5.2%	5.0%	5.1%	4.7%	4.4%

*No respondents.

$$\frac{Q28}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Other Reasons

Area	1980	1981	1982	1983	1984	1985
Boston	14%	17%	16%	11%	12%	15%
New York	27	31	26	13	17	26
Philadelphia	29	22	27	25	12	11
Pittsburgh	29	29	34	23	15	29
Washington, D.C.	24	23	21	21	23	15
Atlanta	27	16	23	18	31	35
Chicago	26	16	17	18	18	14
Cleveland	20	11	8	17	25	18
Detroit	21	20	33	27	23	23
Minneapolis/St. Paul	*	27	17	34	*	12
St. Louis	25	18	22	15	17	18
Dallas	36	7	13	9	0	8
Houston	15	19	34	8	38	28
Los Angeles	18	6	8	14	55	34
San Francisco	33	18	46	21	29	22
Denver	17	13	11	12	13	8
Average	24.2%	22.2%	23.0%	17.3%	23.5%	21.9%
Median	21.5%	13.0%	15.3%	14.9%	16.5%	15.3%

*No respondents.

$$\frac{Q29}{Q30} \times 100$$

Table 5

Transit Returns by Area
(Rate per 100,000 of Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	787.2	843.2	682.6	695.3	534.0	673.8
New York	904.3	908.6	946.2	803.1	726.4	771.2
Philadelphia	800.4	667.1	653.5	630.9	529.8	588.1
Pittsburgh	831.8	725.6	673.8	646.5	707.7	636.1
Washington, D.C.	1,138.4	865.7	930.5	715.4	644.5	894.0
Atlanta	1,046.6	1,028.2	1,117.5	987.6	646.7	1053.5
Chicago	929.4	732.2	771.7	564.9	591.7	786.4
Cleveland	1,106.5	984.3	832.0	586.9	701.1	806.1
Detroit	966.9	1,067.5	819.3	844.0	904.1	437.1
Minneapolis/St. Paul	*	1,169.7	711.5	706.7	*	865.8
St. Louis	1,309.0	1,014.8	757.8	822.4	686.8	934.7
Dallas	867.7	1,293.5	1,131.7	662.6	659.1	878.0
Houston	1,474.5	1,651.6	1,287.9	1,013.7	1015.3	697.8
Los Angeles	1,134.9	1,514.1	1,184.2	1,555.5	891.9	946.8
San Francisco	1,088.6	1,095.1	1,353.7	712.8	861.5	763.0
Denver	1,085.4	1,526.8	1,332.3	1,057.4	1018.0	1297.4
Total banks	165	149	164	134	123	141
Average	1,004.1	910.1	936.1	811.3	701.5	818.9

*No respondents.

$$\frac{Q18}{Q10} \times 100,000$$

Table 6

Distribution of the Transit Return Rate

Transit Return Rate	1980	1981	1982	1983	1984	1985
0 - 200	1	1	3	5	2	4
200 - 400	6	4	9	5	9	5
400 - 600	7	18	13	28	33	18
600 - 800	44	45	48	31	38	34
800 - 1,000	37	37	36	34	27	38
1,000 - 1,200	28	10	24	12	7	25
1,200 - 1,400	19	11	14	10	3	8
1,400 - 1,600	8	7	4	1	1	3
1,600 - 1,800	7	5	1	3	0	1
1,800 - 2,000	4	3	4	2	1	1
Over 2,000	4	8	8	3	2	4
Total banks	165	149	164	134	123	141
Average	1,004.1	910.1	936.1	811.3	701.5	818.9
Median	931.1	824.1	862.6	786.5	708.2	843.1

$$\frac{Q18}{Q10} \times 100{,}000$$

Table 7

Transit Return Dollar Value by Rate of Transit Returns

Transit Returns per 100,00 Items Sent *	Number of Banks 1980	1981	1982	1983	1984	1985
0 - 500	8	12	16	21	23	13
500 - 1,000	87	93	93	79	86	85
1,000 - 1,500	50	25	39	23	10	34
1,500 - 2,000	16	11	8	4	2	4
Over 2,000	4	8	8	3	2	4
Total banks	165	149	164	130	123	140

* $\frac{Q18}{Q10} \times 100,000$

Transit Returns per 100,000 Items Sent*	Average Dollar Value+ 1980	1981	1982	1983	1984	1985
0 - 500	$ 714	$ 737	$1,027	$ 992	$ 818	$ 1,089
500 - 1,000	705	614	671	669	904	878
1,000 - 1,500	583	717	501	735	554	835
1,500 - 2,000	1,023	801	795	562	224	1032
Over 2,000	513	866	645	390	486	778
Average	$ 813	$ 705	$ 678	$ 664	$ 828	$ 869
Median	$ 496	$ 528	$ 511	$ 549	$ 553	$ 795

+ $\frac{Q19}{Q18}$ *See Table 21.

Table 8

Free and Lost Items Discovered by Area
(Rate per 100,000 Incoming Items)

Area	1980	1981	1982	1983	1984	1985
Boston	10.2	11.5	10.2	6.1	12.4	30.5
New York	14.6	20.3	14.2	14.2	16.4	19.4
Philadelphia	13.3	29.8	14.5	14.1	7.6	9.4
Pittsburgh	15.7	12.1	14.2	15.7	3.6	11.2
Washington, D.C.	26.5	23.1	19.0	8.8	10.3	15.9
Atlanta	26.2	16.1	10.3	13.9	9.7	13.3
Chicago	14.7	16.5	16.2	10.2	10.1	12.2
Cleveland	23.1	33.0	19.4	10.9	14.6	15.4
Detroit	31.9	22.4	44.6	36.2	28.5	22.6
Minneapolis/St. Paul	*	36.9	18.7	13.1	*	4.7
St. Louis	31.9	25.6	30.5	10.5	14.7	14.9
Dallas	16.9	15.2	17.6	13.5	10.4	10.5
Houston	24.3	24.5	10.4	9.5	6.8	10.0
Los Angeles	18.7	37.2	22.2	22.6	17.1	15.7
San Francisco	19.6	15.5	21.2	5.0	7.0	7.2
Denver	10.6	10.5	8.8	6.7	4.6	9.0
Total banks	165	143	166	131	120	136
Average	19.6	18.8	14.6	11.1	10.8	13.[illegible]
Median	13.4	15.0	11.0	8.8	10.3	10.1

*No respondents.

$$\frac{Q39 + Q41}{Q1 + Q2} \times 100{,}000$$

Table 9

Free Items Discovered by Area
(Rate per 100,000 Incoming Items)

Area	1980	1981	1982	1983	1984	1985
Boston	4.1	3.6	4.6	2.4	5.5	10.5
New York	7.2	7.5	5.0	5.6	5.8	5.4
Philadelphia	4.8	4.7	8.1	6.6	2.6	3.7
Pittsburgh	3.4	3.0	4.0	4.7	1.5	4.1
Washington, D.C.	8.2	13.0	9.2	3.5	4.8	12.2
Atlanta	10.9	6.9	3.8	5.1	3.8	5.7
Chicago	6.3	6.4	8.2	3.4	4.7	5.7
Cleveland	8.1	9.3	6.3	4.3	7.0	5.8
Detroit	6.1	6.0	6.9	14.8	7.9	6.2
Minneapolis/St. Paul	*	14.2	7.0	5.5	*	1.7
St. Louis	15.4	10.6	11.8	4.8	8.1	7.5
Dallas	6.6	8.8	7.1	5.9	5.4	5.4
Houston	8.8	15.1	3.9	4.4	2.3	4.1
Los Angeles	4.7	17.7	6.9	7.7	6.4	6.3
San Francisco	5.2	4.4	8.3	1.7	3.3	2.5
Denver	4.8	5.0	3.1	1.9	3.0	3.7
Total banks	165	143	166	131	120	136
Average	7.7	7.8	5.9	4.3	4.7	5.7
Median	4.6	4.3	3.4	2.9	3.2	3.4

*No respondents.

$$\frac{Q39}{Q1 + Q2} \times 100{,}000$$

Table 10

Lost Items Discovered by Area
(Rate per 100,000 Incoming Items)

Area	1980	1981	1982	1983	1984	1985
Boston	6.0	7.9	5.6	3.7	6.9	20.0
New York	7.4	12.8	9.2	8.5	10.6	14.1
Philadelphia	8.5	25.1	6.5	7.5	5.0	5.8
Pittsburgh	12.3	9.0	10.2	11.0	2.2	7.1
Washington, D.C.	18.3	10.1	9.7	5.3	5.5	3.6
Atlanta	15.3	9.2	6.5	8.8	5.9	7.6
Chicago	8.4	10.1	8.0	6.8	5.4	6.5
Cleveland	15.0	23.7	13.2	6.6	7.7	9.6
Detroit	25.7	16.4	37.8	21.4	20.6	16.4
Minneapolis/St. Paul	*	22.7	11.6	7.7	*	3.0
St. Louis	16.5	15.0	18.7	5.6	6.5	7.4
Dallas	10.3	6.4	10.5	7.6	5.0	5.2
Houston	15.5	9.4	6.4	5.0	4.5	5.9
Los Angeles	14.0	19.5	15.2	14.9	10.7	9.4
San Francisco	14.3	11.0	12.9	3.4	3.7	4.7
Denver	5.7	5.5	5.8	4.8	1.6	5.3
Total banks	165	143	166	131	120	136
Average	11.9	11.0	8.6	6.8	6.2	8.2
Median	8.1	9.0	7.0	5.5	5.6	5.8

*No respondents.

$$\frac{Q41}{Q1 + Q2} \times 100{,}000$$

Table 11

Distribution of the Free and Lost Items Rate

Rate	1980	1981	1982	1983	1984	1985
0 - 5	29	22	30	32	21	34
5 - 10	40	31	46	42	39	34
10 - 15	20	19	26	17	30	25
15 - 20	13	13	16	15	8	14
20 - 25	14	16	16	17	8	10
25 - 30	8	12	10	10	6	7
30 - 35	13	6	6	3	1	2
35 - 40	8	2	5	1	1	2
40 - 45	6	7	2	0	0	0
45 - 50	3	2	0	0	1	0
50 - 100	11	10	8	3	4	7
Over 100	0	3	1	1	1	1
Total banks	165	143	166	131	120	136
Average	19.6	18.8	14.6	11.1	10.8	13.9
Median	13.4	15.0	11.0	8.8	10.3	10.1

$$\frac{Q39 + Q41}{Q1 + Q2} \times 100{,}000$$

Table 12

Missent, Miscoded, and Listing Error Items Discovered by Area (Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	24.0	29.3	15.0	10.0	13.1	12.0
New York	23.4	24.3	20.6	18.1	21.4	25.0
Philadelphia	29.6	16.2	17.6	15.4	14.3	13.6
Pittsburgh	15.4	13.4	11.2	10.7	4.1	15.9
Washington, D.C.	16.1	14.4	15.1	7.7	9.5	34.7
Atlanta	20.9	16.4	11.6	12.6	9.7	14.4
Chicago	10.0	15.8	14.4	13.0	9.3	13.4
Cleveland	17.8	21.5	16.4	13.4	11.5	9.9
Detroit	20.0	17.4	13.3	14.7	24.1	13.2
Minneapolis/St. Paul	*	33.9	18.9	17.0	*	16.4
St. Louis	14.1	13.8	14.2	11.8	11.2	10.1
Dallas	24.1	9.6	17.3	11.6	9.7	12.2
Houston	32.8	32.3	21.2	18.3	31.7	15.8
Los Angeles	31.0	25.8	13.3	10.8	13.4	9.5
San Francisco	22.6	23.3	17.6	7.5	5.9	9.3
Denver	12.9	5.7	9.5	28.3	6.1	11.0
Total banks	168	143	165	132	118	137
Average	18.6	16.6	13.9	12.7	11.6	14.3
Median	14.9	13.0	11.7	13.3	10.4	11.6

*No respondents.

$$\frac{Q33 + Q35 + Q37}{Q10} \times 100{,}000$$

Table 13

Missent Items Discovered by Area
(Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	15.2	20.2	8.0	4.9	6.5	2.7
New York	14.6	11.6	10.0	8.2	13.1	8.0
Philadelphia	19.4	3.7	4.3	4.8	5.4	4.8
Pittsburgh	2.4	4.0	2.0	0.7	.2	.5
Washington, D.C.	5.1	4.6	5.7	0.8	2.6	24.0
Atlanta	5.1	3.8	4.8	3.8	3.3	3.2
Chicago	2.8	8.0	5.8	2.0	1.1	3.2
Cleveland	4.4	10.4	5.4	4.5	3.1	1.0
Detroit	10.4	9.6	3.5	3.2	8.8	2.8
Minneapolis/St. Paul	*	7.2	8.5	2.3	*	4.6
St. Louis	3.1	2.7	2.1	3.4	5.5	3.7
Dallas	16.1	4.0	6.7	2.6	3.0	2.7
Houston	25.5	24.2	7.2	8.3	21.8	8.9
Los Angeles	20.1	15.6	6.6	4.0	5.1	3.2
San Francisco	12.2	13.7	10.8	1.7	1.3	2.9
Denver	4.8	2.2	4.6	22.9	2.2	5.3
Total banks	168	143	165	131	119	137
Average	7.9	6.5	5.0	4.2	4.6	4.7
Median	4.2	3.9	3.0	2.5	2.4	1.9

*No respondents.

$$\frac{Q33}{Q10} \times 100{,}000$$

Table 14

Miscoded Items Discovered by Area
(Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	6.1	6.9	3.7	3.1	4.3	6.1
New York	4.7	9.4	5.6	7.0	8.3	12.4
Philadelphia	5.8	8.3	7.8	7.2	5.1	6.3
Pittsburgh	7.7	7.3	6.6	7.4	2.3	10.3
Washington, D.C.	6.6	7.2	5.8	4.5	5.2	7.7
Atlanta	8.6	7.0	4.5	5.7	4.8	7.0
Chicago	4.6	4.3	5.8	8.3	4.7	5.3
Cleveland	6.6	5.8	5.8	5.9	5.4	5.0
Detroit	3.5	3.0	5.2	2.8	7.4	4.9
Minneapolis/St. Paul	*	8.2	7.2	9.5	*	10.0
St. Louis	4.0	3.6	4.9	3.0	4.2	3.8
Dallas	3.4	3.0	6.6	4.1	3.8	2.8
Houston	3.6	4.0	5.6	4.6	3.2	4.4
Los Angeles	7.4	6.9	4.2	4.5	6.9	5.7
San Francisco	6.7	6.6	4.2	3.9	3.2	5.7
Denver	4.2	3.1	3.5	4.7	2.9	3.9
Total banks	169	146	166	132	119	137
Average	6.0	6.4	5.3	5.5	5.0	6.2
Median	4.7	4.3	4.3	5.0	4.5	5.4

*No respondents.

$$\frac{Q35}{Q10} \times 100,000$$

Table 15

Listing Error Items Discovered by Area
(Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	2.7	2.2	3.3	2.1	2.3	3.2
New York	4.0	3.4	5.0	2.9	4.5	4.7
Philadelphia	4.4	4.2	5.4	3.4	3.7	2.6
Pittsburgh	5.2	2.2	2.7	2.6	1.7	5.1
Washington, D.C.	4.4	2.7	3.5	2.4	1.7	3.0
Atlanta	6.8	5.7	2.2	3.1	1.6	4.2
Chicago	2.6	3.5	2.5	2.6	3.5	4.9
Cleveland	6.8	5.4	5.3	2.9	2.9	3.9
Detroit	6.1	4.7	4.6	8.7	8.0	5.6
Minneapolis/St. Paul	*	18.5	3.2	5.2	*	1.8
St. Louis	7.0	7.5	7.3	5.4	1.5	2.6
Dallas	4.7	2.7	4.0	5.0	3.0	6.7
Houston	3.7	4.1	8.4	5.4	6.6	2.4
Los Angeles	3.6	3.1	2.5	2.2	1.4	.7
San Francisco	3.7	2.7	2.6	1.9	1.5	.8
Denver	4.0	0.4	1.5	0.7	1.0	1.7
Total banks	169	144	166	132	120	137
Average	4.3	3.8	3.6	3.1	2.6	3.4
Median	2.4	2.1	2.1	2.4	1.7	2.0

*No respondents.

$$\frac{Q37}{Q10} \times 100{,}000$$

Table 16

Distribution of Missent, Miscoded, and Listing Error Items Rate

Rate	1980	1981	1982	1983	1984	1985
0 - 5	20	16	30	19	17	15
5 - 10	38	32	36	30	40	39
10 - 15	26	31	34	34	32	37
15 - 20	23	18	19	21	10	17
20 - 25	17	13	20	9	5	10
25 - 30	15	8	11	5	4	5
30 - 35	6	7	5	6	2	3
35 - 40	4	5	3	1	0	4
40 - 45	4	3	0	1	0	1
45 - 50	0	3	3	1	2	0
50 - 100	13	6	4	2	5	4
100 - 200	1	1	0	2	1	0
Over 200	1	0	0	1	0	1
Total banks	168	143	165	132	118	136
Average	18.6	16.6	14.0	12.7	11.6	14.3
Median	14.9	13.0	11.7	13.3	10.4	11.6

$$\frac{Q33 + Q35 + Q37}{Q10} \times 100,000$$

Table 17

Exception and Return Items Discovered by Area
(Rate per 100,000 Transit Items Processed)

Area	1980	1981	1982	1983	1984	1985
Boston	884.5	883.1	709.1	713.6	563.4	720.9
New York	902.4	939.9	982.4	842.4	768.5	818.3
Philadelphia	843.6	718.6	685.8	657.3	551.4	603.3
Pittsburgh	863.1	753.1	702.1	675.3	716.3	665.1
Washington, D.C.	1,172.5	904.9	964.8	732.3	663.7	946.4
Atlanta	1,240.4	1,056.0	1,140.4	1,032.5	656.2	1081.7
Chicago	957.0	766.1	802.8	589.0	612.2	813.4
Cleveland	1,151.6	1,095.9	871.4	610.7	775.9	834.6
Detroit	895.5	1,185.8	855.9	900.7	966.8	859.6
Minneapolis/St. Paul	*	1,422.3	746.5	741.3	*	886.9
St. Louis	1,353.0	1,053.5	801.6	844.9	723.5	964.8
Dallas	910.3	1,288.2	1,168.2	691.3	682.0	903.1
Houston	1,533.7	1,250.8	1,320.4	1,050.2	1058.8	727.6
Los Angeles	1,194.3	1,767.3	1,221.0	1,608.1	979.7	968.9
San Francisco	1,276.3	1,158.6	1,397.2	729.2	880.4	754.4
Denver	1,111.8	1,542.6	1,352.5	1,092.4	1030.5	1316.5
Total banks	167	143	164	131	118	138
Average	1,062.2	959.4	967.3	837.3	731.2	866.0

*No respondents.

$$\frac{Q18 + Q43}{Q10} \times 100{,}000$$

Table 18

Distribution of the Exception and Return Items Rate

Rate	1980	1981	1982	1983	1984	1985
0 - 250	4	2	2	5	4	3
250 - 500	4	6	13	14	12	9
500 - 750	23	32	39	36	47	34
750 - 1,000	55	51	50	42	38	48
1,000 - 1,250	44	22	30	15	10	29
1,250 - 1,500	12	11	14	10	3	6
1,500 - 1,750	11	7	4	3	1	3
1,750 - 2,000	6	3	4	3	1	2
2,000 - 2,500	5	4	5	1	1	3
Over 2,500	3	5	3	2	1	1
Total banks	167	143	164	131	118	138
Average	1,062.2	959.4	967.3	837.3	731.2	866.0
Median	969.0	865.0	891.8	795.6	727.4	895.1

$$\frac{Q18 + Q43}{Q10} \times 100{,}000$$

Table 19

Percent of Exceptions, Returns, and Rejects to the Number of Items Processed

Area	1980	1981	1982	1983	1984	1985
Boston	2.6%	2.4%	2.0%	1.9%	1.9%	2.2%
New York	2.6	2.7	2.2	2.7	2.6	2.1
Philadelphia	2.3	2.8	2.5	2.1	2.2	1.8
Pittsburgh	1.8	1.8	1.4	1.6	1.4	1.4
Washington, D.C.	2.6	1.8	1.9	1.5	1.7	1.8
Atlanta	2.6	2.2	2.4	1.8	1.8	2.2
Chicago	2.5	2.3	2.4	1.9	1.9	2.1
Cleveland	2.7	2.2	2.0	1.8	1.7	1.6
Detroit	2.7	2.9	2.2	2.2	2.0	2.2
Minneapolis/St. Paul	*	3.8	1.8	1.7	*	1.5
St. Louis	2.8	2.4	2.0	1.9	1.8	2.1
Dallas	2.4	3.1	2.4	2.1	1.7	2.0
Houston	3.8	4.4	2.5	2.5	2.3	2.3
Los Angeles	2.1	2.2	2.3	2.2	2.3	1.8
San Francisco	2.2	2.5	1.6	1.3	1.6	1.5
Denver	2.4	2.3	2.3	1.9	1.9	2.0
Total banks	155	140	158	126	116	135
Average	2.4%	2.4%	2.0%	1.9%	1.9%	1.9%
Median	2.6%	2.5%	2.0%	1.9%	1.8%	1.9%

*No respondents.

$$\frac{Q30 + Q18 + Q43}{Q16} \times 100$$

Table 20

Distribution of Exceptions, Returns, and Reject Rate

Rate	1980	1981	1982	1983	1984	1985
0% - 1.5%	15	20	31	34	39	38
1.5% - 2.0%	24	34	45	42	37	39
2.0% - 2.5%	37	34	40	33	19	36
2.5% - 3.0%	42	28	24	6	14	14
3.0% - 3.5%	21	9	8	6	1	5
3.5% - 4.0%	8	5	5	5	3	1
4.0% - 4.5%	4	2	2	0	1	1
4.5% - 5.0%	1	1	0	0	1	0
Over 5.0%	3	7	3	0	1	1
Total banks	155	140	158	126	116	135
Average	2.4	2.4	2.0	1.9	1.9	1.9
Median	2.6	2.5	2.0	1.9	1.8	1.9

$$\frac{Q30 + Q18 + Q43}{Q16} \times 100$$

Table 21

Return and Exception Item Dollar Analysis by Area
Return Items

Area	Total $ (1) Discovered	Average (2) $ Value/ Item
Boston	$ 107,717,690	$ 796
New York	135,865,706	1,109
Philadelphia	97,671,810	740
Pittsburgh	69,513,322	1,526
Washington, D.C.	51,216,096	471
Atlanta	339,642,876	841
Chicago	172,187,298	785
Cleveland	121,566,877	1,661
Detroit	34,001,941	596
Minneapolis/St. Paul	2,699,752	216
St. Louis	98,990,611	518
Dallas	69,497,092	616
Houston	87,684,901	1,332
Los Angeles	74,791,154	821
San Francisco	298,430,345	1,277
Denver	90,461,211	713
1985 Average 140 Banks	$ 13,228	$ 869
1984 Average 123 Banks	10,602	828
1983 Average 130 Banks	10,774	664
1982 Average 165 Banks	10,925	675
1981 Average 149 Banks	10,104	705
1980 Average 165 Banks	11,258	813
1985 Median 138 Banks	$ 6,685	$ 626
1984 Median 123 Banks	4,179	553
1983 Median 130 Banks	4,544	549
1982 Median 165 Banks	4,670	510
1981 Median 149 Banks	4,441	528
1980 Median 165 Banks	4,363	496

(1) Q19 (2) Q19 / Q18

Table 21 (Continued)

Return and Exception Item Dollar Analysis by Area
Exception Items

	Discovered		Resolved	
Area	Total $ (3)	Average (4) $ Value/ Item	Total $ (5)	Average (6) $ Value/ Item
Boston	$ 39,173,715	$ 4,134	$ 48,033,058	$ 6,823
New York	236,914,162	31,652	88,213,456	16,519
Philadelphia	37,432,242	7,510	12,164,350	5,102
Pittsburgh	123,167,803	59,244	127,347,670	62,919
Washington, D.C.	92,217,372	14,488	23,979,446	5,310
Atlanta	330,553,488	34,777	190,082,288	22,410
Chicago	179,045,078	23,816	158,665,473	27,058
Cleveland	24,875,146	9,582	64,378,360	22,447
Detroit	167,917,738	61,962	155,198,705	67,127
Minneapolis/ St. Paul	143,536	449	148,530	451
St. Louis	234,915,206	38,222	229,588,968	47,613
Dallas	71,060,867	22,062	66,702,978	24,496
Houston	20,361,702	7,259	15,861,068	10,539
Los Angeles	30,487,811	14,327	22,316,440	14,472
San Francisco	423,715,793	74,901	50,074,944	10,893
Denver	17,914,703	9,621	17,598,834	11,480
1985 Average 137 Banks	$ 14,817	$ 27,117	$ 9,273	$ 21,948
1984 Average 123 Banks	13,937	29,631	9,999	27,044
1983 Average 130 Banks	11,504	22,599	12,825	30,544
1982 Average 165 Banks	14,278	25,901	14,875	34,048
1981 Average 149 Banks	22,933	36,792	25,397	50,149
1980 Average 165 Banks	12,020	19,262	11,423	23,885
1985 Median 137 Banks	$ 1,277	$ 3,835	$ 922	$ 3,971
1984 Median 123 Banks	1,233	4,024	931	4,884
1983 Median 130 Banks	1,107	3,382	870	3,512
1982 Median 165 Banks	1,533	4,166	836	3,756
1981 Median 149 Banks	1,371	3,496	1,175	3,913
1980 Median 165 Banks	1,117	3,350	818	3,448

(3) Q45 (4) Q45 / Q43 (5) Q46 (6) Q46 / Q44

Table 22

Age Distribution of Outstanding Exception Items

Dollars Outstanding

Months Outstanding	1980 143 Banks Dollars	Percent	1981 124 Banks Dollars	Percent
0 - 1	$541,802,776	61.8%	$454,148,269	61.2%
1 - 2	171,240,399	19.5	165,448,452	22.3
2 - 4	85,763,209	9.8	68,630,665	9.2
4 - 6	43,450,668	5.0	24,743,939	3.3
Over 6	34,629,413	3.9	29,250,333	3.9
Total	$876,886,465	100.0%	$742,221,658	100.0%

Months Outstanding	1982 144 Banks Dollars	Percent	1983 121 Banks Dollars	Percent
0 - 1	$463,171,271	75.9%	$459,756,255	81.0%
1 - 2	63,630,792	10.4	50,338,707	8.9
2 - 4	33,375,661	5.5	32,344,502	5.7
4 - 6	17,472,913	2.9	15,138,992	2.7
Over 6	32,577,625	5.3	9,713,310	1.7
Total	$610,228,262	100.0%	$567,291,766	100.0%

Months Outstanding	1984 111 Banks Dollars	Percent	1985 126 Banks Dollars	Percent
0 - 1	$572,151,404	78.4%	$404,359,543	67.1%
1 - 2	80,191,703	11.0	76,700,823	12.7
2 - 4	37,623,764	5.2	35,355,359	5.9
4 - 6	18,382,161	2.5	35,057,776	5.8
Over 6	21,178,359	2.9	51,297,979	8.5
Total	$729,527,391	100.0%	$602,771,480	100.0%

Q71 = Q72 + Q73 + Q74 + Q75 + Q76

Table 22 (Continued)

Age Distribution of Outstanding Exception Items

Items Outstanding

Months Outstanding	1980 143 Banks		1981 124 Banks	
	Items	Percent	Items	Percent
0 - 1	88,122	22.8%	80,200	29.1%
1 - 2	81,215	21.0	70,395	25.6
2 - 4	88,346	22.9	60,030	21.8
4 - 6	65,120	16.9	32,134	11.7
Over 6	63,320	16.4	32,575	11.8
Total	386,123	100.0%	275,334	100.0%

Months Outstanding	1982 144 Banks		1983 124 Banks	
	Items	Percent	Items	Percent
0 - 1	71,448	23.7%	80,284	31.0%
1 - 2	67,413	22.3	56,241	21.7
2 - 4	71,833	23.8	62,379	24.1
4 - 6	41,749	13.8	37,819	14.6
Over 6	49,590	16.4	22,370	8.6
Total	302,033	100.0%	259,093	100.0%

Months Outstanding	1984 111 Banks		1985 126 Banks	
	Items	Percent	Items	Percent
0 - 1	82,390	28.0%	86,296	37.8%
1 - 2	59,130	20.1	51,808	22.7
2 - 4	61,716	21.0	38,595	16.9
4 - 6	44,974	15.3	19,963	8.7
Over 6	46,082	15.7	31,715	13.9
Total	294,292	100.0%	228,377	100.0%

Q77 = Q78 + Q79 + Q80 + Q81 + Q82

Table 23

Age Distribution of Outstanding Exception Items by the Microfilming Method (Average Reporting Banks)

Dollars Outstanding

After* Reader/Sorter Processing

	1982 Dollars	1983 Dollars	1984 Dollars	1985 Dollars	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	$ 833,657	$ 708,048	$1,869,983	$1,469,140	77%	56%	79%	68%
1- 2	85,793	338,247	246,674	206,902	8	27	10	10
2 - 4	130,929	153,908	148,092	111,978	12	12	6	5
4 - 6	19,152	54,361	62,876	94,405	2	4	3	5
Over 6	16,282	20,457	38,734	264,272	1	2	2	12
Total	$3,575,996	$1,085,813	$1,275,021	$2,146,697	100%	100%	100%	100%

Before* Reader/Sorter Processing

	1982 Dollars	1983 Dollars	1984 Dollars	1985 Dollars	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	$1,559,068	$ 154,374	$2,768,106	$7,638,587	80%	57%	50%	94%
1 - 2	8,883	37,354	1,423,674	224,610	10	14	26	3
2 - 4	17,660	37,879	609,875	104,215	6	14	11	1
4 - 6	5,513	13,124	345,278	94,632	2	5	6	1
Over 6	11,391	27,945	436,228	90,155	2	10	7	1
Total	$1,602,515	$ 270,676	$5,583,162	$8,152,200	100%	100%	100%	100%

During* Reader/Sorter Processing

	1982 Dollars	1983 Dollars	1984 Dollars	1985 Dollars	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	$3,554,375	$4,055,849	$5,338,299	$3,331,124	80%	81%	79%	67%
1 - 2	453,831	442,193	745,886	629,085	10	9	11	13
2 - 4	242,364	282,912	349,879	291,118	6	6	5	6
4- 6	96,090	132,812	171,550	289,898	2	3	2	6
Over 6	72,038	83,485	198,697	420,867	2	2	3	8
Total	$4,418,698	$4,998,251	$6,804,311	$4,921,937	100%	100%	100%	100%

*Criteria for inclusion in a group, i.e., After, Before, and During was changed in 1983 Survey.

Table 23 (Continued)

Age Distribution of Outstanding Exception Items by Microfilming Method (Average Reporting Banks)

Items Outstanding

After Reader/Sorter Processing

	1982 Items	1983 Items	1984 Items	1985 Items	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	669	435	940	613	64%	35%	32%	15%
1 - 2	236	355	458	880	23	28	16	22
2 - 4	68	181	682	517	7	15	23	13
4 - 6	36	147	300	538	3	12	10	13
Over 6	29	125	549	1470	3	10	19	37
Total	1,038	1,243	2,929	4,018	100%	100%	100%	100%

Before Reader/Sorter Processing

	1982 Items	1983 Items	1984 Items	1985 Items	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	220	208	907	704	45%	32%	20%	29%
1 - 2	93	166	1,549	551	19	26	35	23
2 - 4	92	88	1,055	337	18	14	23	14
4 - 6	53	71	538	328	11	11	13	14
Over 6	33	111	415	491	7	7	9	20
Total	491	644	4,509	2,411	100%	100%	100%	100%

During Reader/Sorter Processing

	1982 Items	1983 Items	1984 Items	1985 Items	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	494	675	730	703	26%	31%	28%	39%
1 - 2	467	471	532	409	25	22	20	23
2 - 4	517	530	552	309	28	24	21	17
4 - 6	281	320	408	153	15	15	15	8
Over 6	116	183	411	228	6	8	16	13
Total	1,875	2,179	2,633	1,802	100%	100%	100%	100%

Table 24

A Comparison of Balancing Policy and Experience

Balancing Procedures (Q83)

	1980	1981	1982	1983	1984	1985
Always balance	4%	3%	3%	4%	2%	2%
Attempt to balance	85	85	80	78	85	82
Very seldom balance	11	12	17	18	13	16

Exception Item Growth (Q84)

	1980	1981	1982	1983	1984	1985
Grown	56%	49%	28%	30%	52%	48%
Remained the same	25	27	32	32	27	31
Decreased	19	24	40	38	21	21

Adjustment Staff Size

	141 Banks	1984	1985	Percent Gain or Loss
Grown	26%	515	615	+19.4%
Remained the same	60	768	772	0.5
Decreased	15	981	866	-11.7
	100%	2,264	2,253	-0.5%

Table 25

Transit Holdover by Area
(Percent of Total Transit Items)

Area	1980	1981	1982	1983	1984	1985
Boston	1.1%	0.2%	0.1%	0.04%	0.08%	0.11%
New York	2.5	2.4	2.6	4.97	3.29	0.51
Philadelphia	1.5	0.3	0.1	0.18	0.15	0.01
Pittsburgh	1.3	1.0	2.0	3.18	4.47	0.75
Washington, D.C.	0.9	0.7	0.4	0.16	0.22	0.37
Atlanta	2.9	5.4	2.0	1.34	0.33	0.76
Chicago	1.4	1.1	2.8	0.86	0.18	1.28
Cleveland	0.5	1.3	0.6	1.24	0.17	0.07
Detroit	0.7	0.4	9.6	3.61	1.15	0.52
Minneapolis/St. Paul	*	0.8	0.8	0.01	*	0.45
St. Louis	2.3	1.7	1.2	0.74	1.55	2.43
Dallas	1.0	6.0	4.6	0.07	0.44	0.28
Houston	3.3	2.4	2.4	0.42	0.09	0.13
Los Angeles	1.4	1.2	0.5	0.88	0.35	0.99
San Francisco	1.9	0.4	0.4	0.21	2.45	0.36
Denver	0.2	0.4	0.6	0.40	1.76	0.00
Total banks	170	152	169	138	124	141
Average	1.9%	1.4%	1.6%	1.19%	1.15%	0.65%
Average dollar value of item held over	$678	$781	$408	$2,129	$529	$718
Median dollar value of item held over	$551	$478	$413	$ 521	$519	$526

*No respondents.

Q11 / (Q10 + Q11) x 100

Table 26

Distribution of the Transit Holdover Rate
(Percent of Total Transit Items)

Rate	1980	1981	1982	1983	1984	1985
0% - 1%	112	105	127	114	100	125
1% - 2%	21	19	17	9	8	9
2% - 3%	13	5	7	4	6	2
3% - 4%	7	4	6	2	3	1
4% - 5%	3	7	0	4	2	0
5% - 10%	7	7	4	2	3	3
10% - 15%	2	2	4	1	0	1
15% - 20%	2	0	2	0	1	0
20% - 30%	3	1	0	1	0	0
Over 30%	0	2	2	1	1	0
Total banks	170	152	169	138	124	141
Average	1.9%	1.4%	1.6%	1.2%	1.2%	0.7%
Median	0.3%	0.2%	0.2%	0.1%	0.1%	0.1%

$$\frac{Q11}{Q10 + Q11} \times 100$$

Table 27

Overall Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 300	15	6	3	1	2	4
300 - 400	31	14	12	8	3	3
400 - 500	24	20	16	13	9	6
500 - 750	88	37	53	39	31	48
750 - 1,000	*	22	30	41	36	36
1,000 - 1,250	*	4	13	17	21	28
Over 1,250	*	2	7	16	18	15
Total banks	158	105	134	135	120	140
Average	524.6	551.6	693.3	787.5	843.7	824.1
Median	522.7	609.8	692.6	802.9	1,092.9	868.5

*No comparable data collected.

Q16

Sum of Q47 through Q69

Table 28

Overall Labor Productivity by Area

Area	1980	1981	1982	1983	1984	1985
Boston	559.1	680.1	689.0	794.2	790.1	857.3
New York	551.6	536.8	592.2	552.2	591.6	497.4
Philadelphia	465.1	612.4	735.0	786.4	798.8	955.9
Pittsburgh	771.2	788.3	974.8	969.7	1,056.4	926.0
Washington, D.C.	565.5	690.7	769.7	885.3	930.8	813.7
Atlanta	567.9	723.7	658.3	821.4	883.5	765.4
Chicago	505.2	584.9	662.3	763.9	885.4	888.5
Cleveland	517.5	493.0	700.6	944.0	998.3	847.4
Detroit	488.3	456.4	702.1	601.4	553.6	655.0
Minneapolis/St. Paul	*	733.3	874.9	1,075.8	*	319.9
St. Louis	613.3	689.7	797.4	806.6	987.1	981.3
Dallas	602.3	739.7	755.4	905.4	911.3	827.3
Houston	462.2	486.7	909.9	843.3	990.4	799.2
Los Angeles	634.0	529.5	595.7	691.0	797.1	717.8
San Francisco	670.9	727.7	1,042.4	978.3	999.0	1,196.0
Denver	624.8	414.2	769.8	782.1	724.8	911.7
Total banks	158	105	134	135	120	140
Average	524.6	551.6	693.3	787.5	843.7	824.1
Median	522.7	609.8	692.6	802.9	866.8	868.5

*No respondents.

$$\frac{\text{Q16}}{\text{Sum of Q47 through Q69}}$$

Table 29

Distribution of Labor by Overall Labor Productivity

Checks per Man-Hour*	Number of Banks	Percent of Labor by Tasks** A	B	C	D	E	F	G	H	I
Under 300	3	24.5%	20.5%	10.6%	16.2%	6.4%	5.2%	4.1%	0.5%	17.8%
300 - 400	2	24.0	21.0	3.4	5.6	9.7	16.5	10.4	3.8	5.6
400 - 500	6	14.1	26.4	11.0	4.4	6.1	16.6	5.8	11.4	4.5
500 - 750	48	15.4	28.1	8.7	3.0	6.2	18.9	7.4	3.3	9.1
750 - 1,000	35	17.0	25.4	6.8	4.8	7.7	20.0	8.7	2.8	7.6
1,000 - 1,250	26	12.5	25.1	6.1	4.9	6.9	28.0	7.3	5.3	7.2
1,250 - 1,500	9	18.1	25.2	7.9	5.3	7.8	18.0	11.8	3.5	2.6
Over 1,500	3	13.4	28.1	16.1	3.8	9.8	20.2	9.3	4.1	2.2
Average, all banks 1985	134	15.9%	25.9%	8.0%	5.1%	7.0%	20.2%	7.6%	4.0%	8.2%
Average, all banks1984	120	14.7	27.1	7.4	5.6	7.7	22.3	7.0	3.1	7.6
Average, all banks 1983	135	14.3	27.5	7.6	4.9	7.0	21.8	7.3	3.2	6.4
Average, all banks 1982	134	15.7	25.4	7.3	4.3	7.0	23.1	7.4	1.8	8.0
Average, all banks 1981	105	17.2	28.8	5.7	4.0	6.8	21.3	6.5	1.6	8.1
Average, all banks 1980	158	18.3	26.2	4.5	4.5	6.9	22.7	6.6	3.2	7.0

$$\frac{\text{Q16}}{\text{Sum of Q47 through Q69}}$$

** Tasks

A. Data control balancing and correction	$\frac{\text{Q49 + Q50}}{\text{Sum of Q47 through Q69}}$	X100
B. Encoding operations	$\frac{\text{Q51 + Q52 + Q55 + Q56}}{\text{Sum of Q47 through Q69}}$	X100
C. Check receiving	$\frac{\text{Q53 + Q54}}{\text{Sum of Q47 through Q69}}$	X100
D. Reader/sorter operations	$\frac{\text{Q57 + Q58}}{\text{Sum of Q47 through Q69}}$	X100
E. Cash letter make-up and microfilming operations	$\frac{\text{Q59 + Q60 + Q61 + Q62}}{\text{Sum of Q47 through Q69}}$	X100
F. On-us processing and return item processing	$\frac{\text{Q63 + Q64 + Q67 + Q68}}{\text{Sum of Q47 through Q69}}$	X100
G. Exception item processing	$\frac{\text{Q47 + Q48}}{\text{Sum of Q47 through Q69}}$	X100
H. Bulk filing	$\frac{\text{Q65 + Q66}}{\text{Sum of Q47 through Q69}}$	X100
I. Nonofficer processing time not including 'A' through 'H' tasks	$\frac{\text{Q69}}{\text{Sum of Q47 through Q69}}$	X100

Table 30

Balancing and Correction Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 1,000	5	7	4	0	1	1
1,000 - 2,000	27	15	11	2	4	7
2,000 - 3,000	37	23	20	20	9	12
3,000 - 4,000	21	20	31	20	14	18
4,000 - 5,000	21	23	18	15	16	13
5,000 - 6,000	13	11	16	6	10	12
6,000 - 7,000	9	8	8	10	12	14
7,000 - 8,000	6	9	8	6	7	11
8,000 - 9,000	28	3	8	7	4	6
9,000 - 10,000	*	2	3	6	1	7
10,000 - 15,000	*	14	14	16	17	17
Over 15,000	*	12	19	19	20	16
Total banks	167	147	160	127	115	134
Average	2,880	3,218	4,651	9,181	5,890	5,305
Median	3,557	4,250	4,782	6,004	6,269	6,160

*No comparable data collected.

$$\frac{Q9}{Q49 + Q50}$$

Table 31

Encoding Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 600	19	12	9	7	5	7
600 - 700	15	14	6	4	9	7
700 - 800	26	17	18	8	10	10
800 - 900	27	34	15	16	12	8
900 - 1,000	27	21	25	13	13	18
1,000 - 1,100	51	13	17	20	12	15
1,100 - 1,200	*	13	20	19	15	20
1,200 - 1,300	*	5	11	16	12	9
1,300 - 1,400	*	3	9	10	10	8
1,400 - 1,500	*	6	9	6	6	7
Over 1,500	*	11	14	13	14	27
Total banks	165	149	153	132	118	136
Average	865	876	988	1,008	1,048	1,148
Median	879	881	1,012	1,089	1,070	1,117

*No comparable data collected.

$$\frac{Q3 + Q4 + Q5 + Q6}{Q51 + Q52 + Q55 + Q56}$$

Table 32

Encoding Labor Productivity for the Single-Pocket Machine

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 600	18	12	9	5	6	5
600 - 700	9	11	5	2	3	7
700 - 800	27	13	15	12	10	8
800 - 900	25	33	17	12	11	7
900 - 1,000	25	21	26	14	13	16
1,000 - 1,100	17	13	17	17	13	12
1,100 - 1,200	14	12	22	18	15	23
1,200 - 1,300	20	8	12	17	9	10
1,300 - 1,400	*	3	9	9	8	7
1,400 - 1,500	*	5	8	6	8	7
Over 1,500	*	12	14	12	15	27
Total banks	155	143	154	124	111	129
Average	864	920	1,003	1,043	1,085	1,109
Median	892	914	1,023	1,100	1,100	1,132

*No comparable data collected.

$$\frac{Q3 + Q4}{Q51 + Q52}$$

Table 33

Encoding Labor Productivity for the Multipocket Machine

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
0 - 100	3	3	3	2	3	2
100 - 200	6	2	3	4	3	3
200 - 300	4	2	4	5	6	4
300 - 400	5	2	4	9	6	8
400 - 500	6	9	3	2	6	5
500 - 600	9	3	6	3	2	3
600 - 700	6	3	4	2	4	2
700 - 800	7	10	7	4	5	8
800 - 900	7	7	7	7	2	1
900 - 1,000	4	4	7	6	4	4
1,000 - 1,100	1	2	4	1	1	2
1,100 - 1,200	2	2	4	2	2	1
Over 1,200	8	8	5	11	8	9
Total banks	68	57	61	58	52	52
Average	685	767	908	818	853	1,331
Median	616	728	764	758	620	700

$$\frac{Q5 + Q6}{Q55 + Q56}$$

Table 34

Items Encoded per Man-Hour by Percent of Pre-encoded Items

Percent of Incoming Items Already Encoded*	Number of Banks					
	1980	1981	1982	1983	1984	1985
80% - 100%	16	19	19	19	18	28
60% - 80%	40	38	45	36	29	43
40% - 60%	60	58	67	51	48	42
0% - 40%	49	34	28	25	23	24
Total banks	165	149	165	131	118	137

Percent of Incoming Items Already Encoded*	Items Encoded per Man-Hour+					
	1980	1981	1982	1983	1984	1985
80% - 100%	776	819	1,068	906	810	1,121
60% - 80%	955	980	1,052	954	1,045	1,172
40% - 60%	1,041	1,413	1,046	1,026	1,151	1,309
0% - 40%	885	1,497	1,064	1,062	1,183	770
Average productivity	865	876	983	1,008	1,048	1,148

* $$\frac{Q1 + Q2}{Q9} \times 100$$

+ $$\frac{Q3 + Q4 + Q5 + Q6}{Q51 + Q52 + Q55 + Q56}$$

Table 35

Check-Receiving Productivity

	1980	1981	1982	1983	1984	1985
Under 5,000	41	27	30	14	9	15
5,000 - 10,000	44	30	34	31	24	28
10,000 - 15,000	34	21	31	27	21	32
15,000 - 20,000	11	30	22	17	23	14
20,000 - 25,000	12	9	12	11	13	8
25,000 - 30,000	3	7	10	9	7	9
Over 30,000	18	25	25	23	17	30
	----	----	----	----	----	----
Total banks	163	149	164	132	114	136
Average	6,519	8,970	9,359	10,164	11,703	10,466
Median	9,113	14,331	12,331	13,780	15,699	14,022

$$\frac{Q9}{Q53 + Q54}$$

Table 36

Reader/Sorter Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 5,000	18	11	6	6	5	5
5,000 - 10,000	29	29	20	17	11	16
10,000 - 15,000	14	22	24	17	17	10
15,000 - 20,000	22	24	27	14	18	17
20,000 - 25,000	13	12	21	17	8	12
25,000 - 30,000	18	12	15	11	5	14
30,000 - 35,000	52	5	9	5	15	9
35,000 - 40,000	*	7	11	12	8	7
40,000 - 45,000	*	6	7	5	3	10
45,000 - 50,000	*	6	6	3	6	8
50,000 - 75,000	*	13	12	19	14	21
Over 75,000	*	5	6	6	6	9
	----	----	----	----	----	----
Total banks	166	152	164	132	116	138
Average	11,740	13,044	15,734	15,516	15,059	16,013
Median	19,917	17,532	21,720	23,428	23,729	27,581

*No comparable data collected.

$$\frac{Q7}{Q57 + Q58}$$

Table 37

Cash Letter Makeup and Microfilming Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 2,000	5	6	3	3	3	3
2,000 - 3,000	10	15	6	4	2	6
3,000 - 4,000	10	11	12	10	5	6
4,000 - 5,000	18	11	15	8	7	5
5,000 - 6,000	12	12	17	15	10	14
6,000 - 7,000	12	14	9	12	13	10
7,000 - 8,000	13	8	17	10	6	16
8,000 - 9,000	10	7	19	9	8	13
9,000 - 10,000	13	11	6	13	6	8
10,000 - 11,000	*	*	9	9	7	9
11,000 - 12,000	64	15	7	5	8	6
12,000 - 15,000	*	6	17	10	12	12
15,000 - 20,000	*	9	7	10	10	9
Over 20,000	*	14	11	5	8	14
Total banks	167	139	155	123	105	131
Average	6,323	6,215	6,803	6,923	6,883	7,690
Median	8,204	7,097	7,919	7,927	8,638	8,401

*No comparable data collected.

$$\frac{Q10 + Q11 + Q20 + Q21}{Q59 + Q60 + Q61 + Q62}$$

Table 38

Cash Letter Makeup Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 2,000	8	7	4	3	2	2
2,000 - 4,000	28	30	24	16	9	12
4,000 - 6,000	29	26	34	21	23	21
6,000 - 8,000	23	20	26	25	10	25
8,000 - 10,000	24	19	22	22	21	21
10,000 - 12,000	15	13	18	16	12	15
12,000 - 15,000	10	8	17	7	7	17
15,000 - 20,000	32	11	7	11	14	7
Over 20,000	*	13	14	12	18	18
Total banks	169	147	166	133	116	138
Average	5,768	5,439	6,532	7,173	8,508	8,228
Median	7,718	6,733	7,659	8,161	9,059	8,710

*No comparable data collected.

$$\frac{Q10 + Q11}{Q59 + Q60}$$

Table 39

Microfilming Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 2,000	28	23	23	29	23	29
2,000 - 4,000	14	19	22	13	11	16
4,000 - 6,000	12	14	16	8	9	9
6,000 - 8,000	11	15	4	9	7	7
8,000 - 10,000	14	7	11	4	5	9
10,000 - 12,000	11	11	8	5	4	4
12,000 - 15,000	14	8	9	7	8	8
15,000 - 18,000	39	3	7	4	1	2
18,000 - 21,000	*	5	5	2	0	2
21,000 - 30,000	*	5	9	4	2	4
30,000 - 50,000	*	4	2	5	5	2
Over 50,000	*	5	5	2	3	3
Total banks	143	119	121	92	78	95
Average	7,933	8,971	9,442	6,226	2,969	4,309
Median	8,924	6,639	5,869	4,610	4,988	4,234

*No comparable data collected.

$$\frac{Q20 + Q21}{Q61 + Q62}$$

Table 40

On-Us Processing Labor Productivity

Checks per Man-Hour	1983	1984	1985
Under 400	4	7	16
400 - 500	1	2	3
500 - 600	1	5	8
600 - 700	5	4	6
700 - 800	3	4	4
800 - 900	11	6	3
900 - 1,000	8	2	4
1,000 - 1,250	17	15	10
1,250 - 1,500	12	7	11
1,500 - 1,750	10	13	10
1,750 - 2,000	5	2	4
2,000 - 3,000	12	13	14
3,000 - 4,000	5	3	6
4,000 - 5,000	2	5	6
5,000 - 10,000	12	16	13
10,000 - 15,000	5	3	3
15,000 - 20,000	1	1	1
20,000 - 25,000	1	0	2
Over 25,000	1	1	6
Total banks	116	109	130
Average	1,359	1,350	1,389
Median	1,399	1,578	1,529

$$\frac{Q12 + Q13 + Q14}{Q63 + Q64}$$

Table 41

Percent of On-Us Items Received and On-Us Processing Labor Productivity

Percent of On-Us Items Received*	1983	1984	1985	Checks Processed per Man-Hour+ 1983	1984	1985
Under 10%	14	13	36	936	612	650
10% - 20%	32	30	29	1,216	1,419	708
20% - 30%	19	28	24	1,280	1,767	1.713
30% - 40%	25	16	17	2,618	1,944	2,537
40% - 50%	7	8	14	1,753	3,366	3,552
50% - 60%	12	10	7	984	1,003	3,258
60% - 70$	4	2	3	971	1,537	1,641
Over 70%	3	0	0	3,686	0	0
Total banks	116	107	130			
Average productivity				1,359	1,352	1,389

$$* \frac{Q12 + Q13 + Q14}{Q16} \times 100$$

+ Average within each percentage group.

$$\frac{Q12 + Q13 + Q14}{Q63 + Q64}$$

Table 42

Bulk Filing Labor Productivity

Checks per Man-Hour	1982	1983	1984	1985
Under 1,500	8	14	13	21
1,500 - 3,000	22	15	12	18
3,000 - 4,500	9	14	11	16
4,500 - 10,000	26	20	21	23
10,000 - 25,000	17	18	16	11
25,000 - 50,000	9	6	7	10
50,000 - 100,000	11	7	8	12
Over 100,000	6	2	5	7
Total banks	108	96	93	118
Average	5,959	3,915	4,467	4,198
Median	6,786	5,470	6,821	5,390

$$\frac{Q15}{Q65 + Q66}$$

Table 43

Exception and Return Item Processing

Items per Man-Hour	1980	1981	1982	1983	1984	1985
Under 10	17	13	15	9	9	7
10 - 15	19	24	23	17	10	18
15 - 20	27	21	22	12	16	21
20 - 25	23	18	19	22	16	17
25 - 30	20	13	20	16	17	21
30 - 35	16	13	9	15	14	9
35 - 40	8	13	13	6	6	6
40 - 45	10	3	9	5	4	9
45 - 50	5	3	6	7	4	6
50 - 100	13	10	16	15	16	19
Over 100	6	2	4	1	1	1
	----	----	----	----	----	----
Total banks	164	133	156	125	113	134
Average	27	24	27	27	27	27
Median	24	22	25	26	26	27

$$\frac{Q18 + Q43 + Q44}{Q47 + Q48 + Q67 + Q68}$$

Table 44

Return Item Productivity

Items per Man-Hour	1980	1981	1982	1983	1984	1985
Under 15	15	14	15	10	9	4
15 - 20	4	8	7	4	6	6
20 - 25	14	10	13	10	8	13
25 - 30	17	10	8	10	5	14
30 - 35	10	13	5	6	14	10
35 - 40	8	13	12	9	7	14
40 - 45	9	5	6	9	13	7
45 - 50	8	6	8	9	4	9
50 - 65	52	19	29	20	15	22
65 - 80	29	15	14	13	11	10
80 - 100	*	13	11	9	10	10
100 - 120	*	1	10	6	6	2
120 - 200	*	7	6	7	6	9
Over 200	*	7	14	6	4	7
Total banks	166	141	158	128	118	137
Average	54	48	56	54	52	50
Median	47	44	54	49	44	46

*No comparable data collected.

$$\frac{Q18}{Q67 + Q68}$$

Table 45

Exception and Return Item Productivity by Rate Discovered

Number of Banks

Exception Item Rate per 100,000 Items Sent**	1980	1981	1982	1983	1984	1985
0 - 500	8	8	13	17	15	11
500 - 1,000	76	77	87	75	82	81
1,000 - 1,500	55	31	42	24	13	33
1,500 - 2,000	17	8	7	6	1	5
2,000 - 2,500	5	4	4	1	1	3
2,500 - 3,000	2	1	1	0	1	0
Over 3,000	0	4	1	2	0	1
Total banks	163	133	156	125	113	134

** $\frac{Q18 + Q43}{Q10} \times 100{,}000$

Table 45 (Continued)

Exception and Return Item Productivity
by Rate Discovered

Exception Item Rate per 100,000 Items Sent**	Items Resolved per Man-Hour					
	1980	1981	1982	1983	1984	1985
0 - 500	29	12	13	14	16	14
500 - 1,000	27	23	30	24	27	24
1,000 - 1,500	33	41	32	35	32	37
1,500 - 2,000	35	35	43	28	33	33
2,000 - 2,500	78	35	28	46	132	55
2,500 - 3,000	39	39	40	*	*	*
Over 3,000	*	30	67	75	32	47
Average	26	24	27	27	27	27
Median	24	22	25	26	26	27

** $\frac{Q18 + Q43}{Q10} \times 100{,}000$

+ $\frac{Q18 + Q43 + Q44}{Q47 + Q48 + Q67 + Q68}$

* No respondents.

Table 46

Exception Item Productivity

Items per Man-Hour	1980	1981	1982	1983	1984	1985
0 - 2	55	41	54	38	26	31
2 - 3	30	23	30	22	18	15
3 - 4	18	21	16	18	12	18
4 - 5	11	8	10	6	10	21
5 - 10	29	23	32	29	28	33
10 - 15	6	9	13	10	11	12
15 - 20	4	4	2	1	5	2
Over 20	14	12	8	7	4	5
Total banks	167	141	165	131	114	137
Average	3	3	3	3	3	3
Median	3	3	3	3	4	4

$$\frac{Q43 + Q44}{Q47 + Q48}$$

Table 47

Reject Processing Productivity by Area

Area	1980	1981	1982	1983	1984	1985
Boston	346	577	400	422	452	448
New York	376	444	489	209	365	285
Philadelphia	397	549	441	372	376	600
Pittsburgh	737	737	720	387	360	248
Washington, D.C.	384	395	446	331	306	272
Atlanta	555	466	384	308	300	292
Chicago	355	433	322	313	483	242
Cleveland	282	287	280	159	159	199
Detroit	370	476	721	451	332	353
Minneapolis/St. Paul	*	479	626	244	*	220
St. Louis	439	494	325	295	365	263
Dallas	478	210	448	294	331	335
Houston	610	305	478	216	110	284
Los Angeles	963	327	938	346	430	536
San Francisco	365	371	239	178	311	337
Denver	641	518	355	145	348	560
Total banks	110	101	123	102	96	113
Average	308	248	276	260	325	319
Median	357	343	347	346	352	365

*No respondents.

Q99

Q100

Table 48

Reject Processing Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 100	6	10	11	7	5	8
100 - 200	20	15	19	15	16	18
200 - 300	19	16	21	17	19	17
300 - 400	16	17	19	24	16	18
400 - 500	16	11	19	12	10	10
500 - 600	10	7	10	7	14	10
600 - 700	5	4	6	6	6	6
700 - 800	18	5	2	1	2	8
800 - 900	*	4	3	2	1	5
900 - 1,000	*	5	3	1	1	3
Over 1,000	*	7	10	10	6	10
	----	----	----	----	----	----
Total banks	110	101	123	102	96	113
Average	308	248	276	260	325	319
Median	357	343	347	346	352	365

*No comparable data collected.

Q99

Q100

Table 49

Reject Rate After Reader/Sorter High-Speed Reject Reentry by Area

Area	1980	1981	1982	1983	1984	1985
Boston	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%
New York	1.4	0.8	0.6	0.7	0.4	0.2
Philadelphia	0.7	0.9	0.8	0.7	0.3	0.6
Pittsburgh	1.6	*	1.1	0.9	0.0	1.1
Washington, D.C.	1.0	0.4	0.6	0.4	0.2	0.5
Atlanta	1.0	0.9	1.1	0.6	0.3	0.7
Chicago	1.0	0.9	0.5	0.3	0.8	0.6
Cleveland	0.8	1.0	0.5	0.4	0.3	0.2
Detroit	0.4	0.1	0.3	0.2	0.4	0.7
Minneapolis/St. Paul	*	1.0	0.6	0.7	*	0.3
St. Louis	0.7	0.6	0.7	0.2	0.5	0.5
Dallas	*	0.9	1.0	0.8	1.1	0.8
Houston	0.5	1.1	0.8	0.4	0.6	0.0
Los Angeles	0.3	0.5	0.5	0.9	0.2	0.4
San Francisco	0.4	0.4	0.5	0.4	0.5	0.2
Denver	1.0	0.5	0.3	0.4	*	0.4
Total banks	68	56	77	58	49	60
Average	0.8%	0.8%	0.6%	0.5%	0.4%	0.5%
Median	0.7%	0.7%	0.5%	0.4%	0.3%	0.3%

*No respondents.

$$\frac{Q31}{Q7} \times 100$$

Table 50

Distribution of the Reject Rate After High-Speed Reject Reentry

Rate	1980	1981	1982	1983	1984	1985
0% - 0.1%	11	14	23	20	18	22
0.1% - 0.3%	14	4	6	8	8	12
0.3% - 0.5%	5	6	10	7	6	7
0.5% - 0.8%	7	8	9	10	10	8
0.8% - 1.0%	10	4	9	8	1	5
1.0% - 1.5%	8	14	12	4	5	4
1.5% - 2.0%	6	5	5	1	1	1
2.0% - 2.5%	5	1	1	0	0	1
2.5% - 3.0%	2	0	2	0	0	0
Over 3.0%	0	0	0	0	0	0
Total banks	68	56	77	58	49	60
Average	0.8%	0.8%	0.6%	0.5%	0.4%	0.5%
Median	0.7%	0.7%	0.5%	0.4%	0.3%	0.3%

$$\frac{Q31}{Q7} \times 100$$

Table 51

Average Number of Rejects Reentered from the First-Pass by Area

Area	1981	1982	1983	1984	1985
Boston	23,382	13,117	32,737	31,752	29,478
New York	40,925	52,119	31,455	36,155	21,346
Philadelphia	28,703	18,805	20,967	19,317	28,323
Pittsburgh	26,103	22,980	19,500	23,117	33,974
Washington, D.C.	21,760	31,192	30,214	36,327	28,199
Atlanta	34,335	36,391	42,815	32,504	44,912
Chicago	39,407	45,454	28,456	31,419	31,951
Cleveland	28,956	33,944	47,714	31,167	35,071
Detroit	10,912	15,955	16,682	12,495	39,814
Minneapolis/St. Paul	6,069	5,529	14,715	*	6,684
St. Louis	21,710	25,322	28,792	28,587	30,405
Dallas	45,098	58,451	51,843	23,483	30,831
Houston	37,084	23,626	30,202	25,201	25,318
Los Angeles	36,448	101,599	56,374	45,404	26,534
San Francisco	94,456	50,270	67,097	125,256	155,560
Denver	31,318	38,351	22,728	24,312	16,564
Total banks	118	136	121	108	121

*No respondents.

Table 52

Average Number of Rejects Reentered from Subsequent Passes by Area

Area	1981	1982	1983	1984	1985
Boston	3,417	3,710	3,985	2,686	4,056
New York	263	2,154	682	706	671
Philadelphia	1,249	1,588	1,437	0	0
Pittsburgh	0	0	0	0	0
Washington, D.C.	886	400	810	419	1,827
Atlanta	5,157	1,628	870	851	3,288
Chicago	2,603	2,115	1,629	3,350	3,097
Cleveland	626	515	1,213	1,387	1,021
Detroit	0	0	0	0	0
Minneapolis/St. Paul	0	0	0	*	0
St. Louis	0	438	586	561	974
Dallas	0	172	0	875	1,532
Houston	545	55	0	0	1,968
Los Angeles	22	158	388	48	0
San Francisco	2,204	2,359	81	958	0
Denver	338	239	1,129	225	204
Total banks	118	135	121	108	121

*No respondents.

Table 53

Reject Reentry Productivity by Area

Area	1981	1982	1983	1984	1985
Boston	545	211	358	174	264
New York	489	464	170	350	375
Philadelphia	316	313	303	210	319
Pittsburgh	321	475	189	661	219
Washington, D.C.	264	397	278	283	281
Atlanta	339	365	321	167	342
Chicago	323	368	298	374	274
Cleveland	214	259	201	156	200
Detroit	314	611	410	242	191
Minneapolis/St. Paul	337	396	464	*	197
St. Louis	251	344	245	264	219
Dallas	275	319	257	203	314
Houston	444	319	100	93	205
Los Angeles	472	558	346	222	410
San Francisco	440	391	187	213	620
Denver	367	277	109	259	318
Total banks	110	134	115	107	118
Average	271	256	227	217	313
Median	293	304	285	286	333

*No respondents.

Q90

Q91

Table 54

Reject Reentry Productivity

Check per Man-Hour	1981	1982	1983	1984	1985
Under 100	16	18	10	16	8
100 - 200	18	20	30	22	21
200 - 300	23	27	20	17	20
300 - 400	15	26	17	23	25
400 - 500	17	18	9	9	17
500 - 600	7	4	10	7	8
600 - 700	3	6	3	6	11
700 - 800	6	5	6	3	3
800 - 900	1	2	3	2	0
900 - 1,000	1	2	4	1	0
Over 1,000	3	6	3	1	5
Total banks	110	134	115	107	118
Average	271	256	227	217	313
Median	293	306	285	286	333

Q90

Q91

Table 55

Automated Reject Processing

Use of Automated Processing	1981	1982	1983	1984	1985
No	39%	28%	21%	16%	20%
Yes, exclusively	19	18	20	23	27
Yes, in combination with manual methods	42	54	59	61	53
If no, do you plan to acquire automated reject processing?					
No	11%	26%	38%	45%	31%
Yes	44	35	35	25	31
Undecided	45	39	27	30	39
If yes, automated reject processing is:					
On-line	63%	69%	70%	72%	80%
Off-line	37	31	30	28	20
Do you repair all fields, including the account number?					
No	16%	21%	14%	21%	17%
Yes	12	13	18	17	13
Yes, on selected banks	40	43	37	33	36
Yes, but only if operator intervention is not required	32	23	31	29	34

Table 56

Percent of Automated Reject Processing by Area

	Automated Reject Processing+					
Area	1980	1981	1982	1983	1984	1985
Boston	74%	70%	82%	94%	96%	92%
New York	43	59	75	85	82	90
Philadelphia	54	65	65	84	89	93
Pittsburgh	70	100	60	97	99	98
Washington, D.C.	44	56	63	84	84	89
Atlanta	61	78	74	71	81	88
Chicago	40	62	75	89	91	93
Cleveland	67	71	70	92	80	83
Detroit	60	50	57	50	100	78
Minneapolis/St. Paul	*	59	79	84	*	0
St. Louis	62	57	69	73	65	79
Dallas	96	53	77	81	92	85
Houston	62	81	50	69	67	83
Los Angeles	83	85	78	82	81	88
San Francisco	60	68	53	73	95	79
Denver	48	51	89	80	100	83
Total banks	115	104	123	108	97	115
Average	69	70	77	81	85	88
Median	74	83	85	92	95	95

* No respondents.

+ $\frac{Q97}{Q99} \times 100$

Table 56 (Continued)

Percent of Automated Reject Processing by Area

	Manual Reject Processing++					
Area	1980	1981	1982	1983	1984	1985
Boston	26%	30%	19%	7%	5%	8%
New York	57	41	25	15	18	10
Philadelphia	46	36	35	17	11	7
Pittsburgh	31	0	40	3	1	2
Washington, D.C.	56	44	37	16	16	11
Atlanta	39	22	26	29	19	13
Chicago	61	38	25	11	9	7
Cleveland	33	29	30	8	20	17
Detroit	40	50	43	50	0	22
Minneapolis/St. Paul	*	41	21	16	*	100
St. Louis	38	43	31	27	35	21
Dallas	4	47	23	19	8	15
Houston	36	19	50	31	33	17
Los Angeles	17	15	22	19	20	12
San Francisco	40	32	47	27	5	21
Denver	52	49	11	20	0	17
Total banks	115	104	123	108	97	115
Average	31	30	23	19	15	13
Median	26	17	15	9	5	6

* No respondents.

++ $\frac{Q98}{Q99} \times 100$

Table 57

Distribution of the Automated Reject Processing Rate

Rate	1980	1981	1982	1983	1984	1985
0% - 10%	25	22	23	15	9	15
10% - 20%	3	0	0	1	0	1
20% - 30%	6	4	0	2	1	2
30% - 40%	4	0	0	2	2	2
40% - 50%	2	7	7	1	1	0
50% - 60%	6	3	2	5	2	1
60% - 70%	8	5	8	2	4	6
70% - 80%	10	9	6	11	5	3
80% - 90%	10	11	24	13	11	16
90% - 100%	13	14	23	29	22	23
100%	28	29	30	27	40	45
Total banks	115	104	123	108	97	115
Average	69%	70%	77%	81%	85%	88%
Median	74	83	85	92	95	95

$$\frac{Q97}{Q99} \times 100$$

Table 58

Percent of Incoming Items Encoded

Area	1980	1981	1982	1983	1984	1985
Boston	52%	56%	56%	75%	72%	69%
New York	52	48	51	54	57	51
Philadelphia	45	49	54	64	59	66
Pittsburgh	40	50	51	60	70	69
Washington, D.C.	44	48	52	56	52	54
Atlanta	51	56	55	56	60	53
Chicago	69	73	75	83	84	83
Cleveland	56	51	53	53	59	62
Detroit	43	38	43	52	57	64
Minneapolis/St. Paul	*	55	74	80	*	23
St. Louis	70	70	72	75	79	81
Dallas	77	71	72	87	83	80
Houston	69	60	74	86	88	82
Los Angeles	36	32	38	40	44	50
San Francisco	47	44	51	78	80	62
Denver	67	58	64	64	60	62
Total banks	170	157	170	138	124	141
Average	57%	57%	63%	65%	67%	64%
Median					54%	59%

*No respondents.

$$\frac{Q1 + Q2}{Q9} \times 100$$

Table 59

Percent of Supervisory Time to Clerical Man-Hours

Task	1980	1981	1982	1983	1984	1985
Processing of exception items (Q48/Q47) x 100	14%	14%	14%	14%	16%	15%
Data control (Q50/Q49) x 100	13	12	14	13	11	12
Encoding $\frac{(Q52 + Q56)}{(Q51 + Q55)} \times 100$	12	9	12	11	10	10
Check receiving (Q54/Q53) x 100	12	13	14	13	13	14
Reader/Sorter (Q58/Q57) x 100	15	19.	23	18	17	33
Cash letter make-up (Q60/Q59) x 100	14	14	15	15	14	15
Microfilm (Q62/Q61) x 100	6	11	13	7	12	10
Paying and filing (Q64/Q63) x 100	8	8	10	8	7	8
Bulk filing (Q66/Q65) x 100	11	13	14	14	15	13
Return items (Q68/Q67) x 100	13	12	11	13	12	13
Total banks	158	106	134	136	120	140
Combined average	12%	11%	13%	12%	11%	13%

$$\frac{Q48 + Q50 + Q52 + Q54 + Q56 + Q58 + Q60 + Q62 + Q64 + Q66 + Q68}{Q47 + Q49 + Q51 + Q53 + Q55 + Q57 + Q59 + Q61 + Q63 + Q65 + Q67} \times 100$$

Table 60

Percent of On-Us Items

Area	1980	1981#	1982	1983	1984	1985
Boston	47%		42%	42%	41%	41%
New York	52		54	48	44	52
Philadelphia	51		48	38	36	34
Pittsburgh	58		62	50	40	40
Washington, D.C.	39		49	53	48	50
Atlanta	44		46	56	41	47
Chicago	30		27	25	24	22
Cleveland	47		49	44	48	47
Detroit	41		53	43	42	36
Minneapolis/St. Paul	*		27	35	*	20
St. Louis	24		23	25	22	20
Dallas	23		31	23	29	29
Houston	28		35	24	24	23
Los Angeles	68		52	50	45	38
San Francisco	59		65	57	55	58
Denver	44		41	34	53	36
Total banks	170		165	138	123	141
Average	44%		48%	45%	42%	41%
Median					48%	45%

*No respondents.

#Data not available.

$$\frac{Q12 + Q13 + Q14 + Q15}{Q16} \times 100$$

Table 61

Percent of Payable-Through Drafts

Area	1980	1981#	1982	1983	1984	1985
Boston	8.5%		9.1%	23.1%	20.1%	17.1%
New York	3.2		1.1	5.3	5.6	0.9
Philadelphia	1.7		1.1	1.0	1.0	0.5
Pittsburgh	0.3		0.3	0.4	0.6	0.5
Washington, D.C.	14.9		2.5	4.8	4.7	3.1
Atlanta	1.3		2.3	2.0	1.2	1.0
Chicago	7.2		5.5	4.1	5.2	4.4
Cleveland	1.6		9.7	0.9	0.7	0.7
Detroit	0.5		0.3	0.6	3.1	0.9
Minneapolis/St. Paul	*		8.2	5.9	*	0.0
St. Louis	5.3		14.3	4.9	11.7	9.5
Dallas	2.4		2.0	2.4	1.0	1.1
Houston	2.4		1.6	0.7	0.4	0.6
Los Angeles	2.6		1.4	1.2	0.9	1.5
San Francisco	2.4		0.7	0.6	0.7	0.4
Denver	4.8		8.1	16.2	12.9	6.2
Total banks	169		164	138	123	140
Average	5.2%		2.4%	3.5%	3.7%	2.7%
Median					0.5%	0.3%

*No respondents.

#Data not available.

$$\frac{Q14}{Q12 + Q13 + Q14 + Q15} \times 100$$

Table 62

Forms of Check Truncation

Area	Truncation at the Bank of First Deposit					Check Safekeeping at Payor Bank				
	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985
Boston						0	1	1	1	3
New York						5	4	3	3	3
Philadelphia						5	5	4	3	2
Pittsburgh						1	1	0	0	0
Washington, D.C.						2	2	2	3	2
Atlanta						3	6	3	2	4
Chicago			NO ACTIVITY			3	4	2	3	4
Cleveland			TO REPORT			1	3	2	2	2
Detroit			AT THIS			0	1	2	2	1
Minneapolis/St. Paul			TIME			3	1	2	0	0
St. Louis						2	0	2	3	2
Dallas						1	1	1	1	3
Houston						0	1	0	2	0
Los Angeles						2	3	0	0	0
San Francisco						2	3	0	2	0
Denver						2	2	1	0	0
Total banks						32	38	25	27	26

Check Safekeeping
(in thousands)

	1982	1983	1984	1985
Total Items	4,916	3,191	3,726*	2,172
Average Items/Bank	129	128	87	84
Total Dollars	$1,906,901	$1,543,266	$1,244,060	$1,670,359
Average Dollars/Bank	63,563	61,731	46,076	64,245

*Includes banks that reported items only.

Table 62 (Continued)

Forms of Check Truncation

Area	Cooperative Check Truncation 1982	1983	1984	1985	Electronic Check Presentment 1982	1983	1984	1985
Boston	1	0	0	1	1	0	0	2
New York	3	3	2	1	1	1	1	1
Philadelphia	0	0	0	0	1	0	1	1
Pittsburgh	0	0	0	0	2	2	1	2
Washington, D.C.	0	0	0	0	1	0	0	1
Atlanta	1	0	0	0	0	0	0	3
Chicago	2	2	2	2	3	2	2	2
Cleveland	1	1	0	1	1	1	2	1
Detroit	0	0	0	0	0	0	0	0
Minneapolis/St. Paul	0	0	*	1	0	0	0	0
St. Louis	1	1	0	0	0	0	0	1
Dallas	0	0	0	0	1	1	0	1
Houston	0	0	0	0	0	0	0	0
Los Angeles	1	1	0	0	0	1	0	0
San Francisco	0	0	0	0	1	2	0	0
Denver	0	0	0	0	0	1	1	2
Total banks	10	8	4	6	12	11	8	17

Cooperative Check Truncation (in Whole Units)

	1982	1983	1984	1985
Total Items	2,258	1,682	949	308,762
Average Items/Bank	226	210	237	51,460
Total Dollars	$484,289	$289,644	$144,692	$125,261,512
Average Dollars/Bank	53,810	36,206	36,173	20,876,919

Electronic Check Presentment (in Thousands)

	1982	1983	1984	1985
Total Items	53	319	244	833
Average Items/Bank	4	29	30	49
Total Dollars	$184,478	$265,175	$154,461	$518,802
Average Dollars/Bank	15,373	24,107	19,308	30,518

*No data available.

Table 62 (Continued)

Forms of Check Truncation

Data Processing Services

Area	1982	1983	1984	1985
Boston	0	0	1	1
New York	0	1	1	0
Philadelphia	1	0	0	0
Pittsburgh	0	1	0	1
Washington, D.C.	1	2	1	1
Atlanta	0	1	1	3
Chicago	0	0	0	0
Cleveland	0	1	1	1
Detroit	1	1	1	1
Minneapolis/St. Paul	0	1	0	0
St. Louis	0	0	2	1
Dallas	0	0	1	0
Houston	0	0	0	0
Los Angeles	0	0	0	1
San Francisco	0	0	0	0
Denver	2	2	1	2
	----	----	----	----
Total banks	5	10	10	12

Data Processing Services
(in Thousands)

	1982	1983	1984	1985
Total Items	1,476	7,865	7,418	2,052
Average Items/Bank	246	736	742	171
Total Dollars	$61,109	$734,325	$993,929	$219,183
Average Dollars/Bank	12,222	73,432	99,393	18,265

APPENDIX C
1985 SURVEY QUESTIONNAIRE

Region ____________ Bank No. ____________
Date ______________________________
Bank Name
____

FOR
BAI
USE
ONLY

To Data Entry __________ Re-entry: __________
From Data Entry ________ Received: ________
Verified ____________ Verified: ____________

1985
Check Collection Performance Measurement Survey

Bank Administration Institute
AN OPERATIONS & TECHNOLOGY GROUP PROJECT

INSTRUCTIONS

- Please report all data for the period beginning Monday, September 16, 1985, and ending Saturday, September 21, 1985. Place the appropriate date in the space provided at the top of each column in Section I.
- The Outstanding Exception Items, Section VIII, and the Comments, Section XII, should be completed at the end of the survey period.
- Please report data pertaining to your domestic banking operations, including branches, if applicable.
- Since you may be unable to answer all questions, please respond with "N.A." if the question does not apply to your bank's operation, or with a "zero" where appropriate.
- Please read all definitions before completing the survey.
- Mail the completed survey booklet to:

  William C. Fisher
  Principal Research Manager
  Bank Administration Institute
  60 Gould Center
  Rolling Meadows, Illinois 60008
- If you have any questions, please call William C. Fisher, Principal Research Manager, at (312) 228-6200.

BANK ADMINISTRATION INSTITUTE

Check Collection Performance Measurement Survey
AN OPERATIONS & TECHNOLOGY GROUP PROJECT

Date ____________________

Bank Name ____________________

Street Address ____________________

City ____________________ State __________ Zip __________

Name ____________________ Title ____________________
(of person to be contacted about survey date)

Address ____________________ Phone ____________________
(if different from above)

Name ____________________ Title ____________________
(of person to whom completed survey is to be returned, if different from above)

	NUMBER OF ACCOUNTS
DDA	
Savings	
Money Market	
NOW	
Super NOW	

Number of Reader/Sorters	
Number of Proof Machines	
Single Pocket	
Multiple Pocket	

Please report all actual counts. Do *NOT* round off

DATA COLLECTION FORM

INCOMING WORK includes the check processing items received from the Federal Reserve, nonlocal banks, local banks and items included in all deposits made in your bank. Do *not* include the DDA items you process for other banks when you provide the accounting service on a fee basis. Do *not* include extra services performed over and above the check processing for lock box deposits, credit cards, preauthorized payments, account reconcilement, or wire transfer.

ITEMS consist of cashed and deposited checks, deposit tickets, control tickets, and other items that are normally processed commingled with checks on proof and/or encoding equipment. For batches use standard estimating techniques to determine item count.

I. INCOMING WORK

QUESTION	Question Relation-ship	Monday Date______	Tuesday Date	Wednesday Date______	Thursday Date______	Friday Date______	Saturday Date______	WEEKLY TOTAL
1. Number of amount encoded items received from other banks and customers (who do their own encoding) sent to the reader/sorter	—							1.
2. Number of amount encoded items received from other banks and customers (who do their own encoding) *NOT* sent to the reader/sorter.	—							2.
3. Number of items your bank encoded on single-pocket proof machines sent to the reader/sorter	—							3.
4. Number of items your bank encoded on single-pocket proof machines *NOT* sent to the reader/sorter.	—							4.
5. Number of items your bank encoded on multi-pocket proof machines sent to the reader/sorter.	—							5.
6. Number of items your bank encoded on multi-pocket proof machines *NOT* sent to the reader/sorter.	—							6.
7. Number of first-pass items processed on the reader/sorter.	1+3+5=7							7.
8. Number of items that were *NOT* processed by the reader/sorter.	2+4+6=8							8.
9. Number of items received by your bank.	7+8=9							9.

Please report all actual counts.
Do not round off.

OUTGOING WORK is the disposition of all items you received and processed today.

TRANSIT ITEMS are the items you processed both high speed and low speed that were "on-others."

TRANSIT HOLDOVERS—items received by your bank prior to a deadline but which were not processed by high-or-low-speed systems in time to be sent for collection at that deadline. These would result in a loss of float to the bank but not to its customer. Do not add today's holdover items to the next day's count.

ON-US ITEMS—those items drawn on your bank; includes all types of checking accounts, cashier checks, deposit tickets, and control tickets.

ON-US ITEMS HELD OVER—items received by your bank that were not processed in time to be posted to your accounts on the day they were received.

BULK FILE ITEMS—those items stored in bundles according to date paid within the statement cycle.

II. OUTGOING WORK

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
10. Total number of transit items (on others) sent.	—							10.
11. Total number of transit holdover (on other) items	—							11.
12. Total number of on-us items paid and filed (from previous day's incoming work).	—							12.
13. Total number of on-us items held over.	—							13.
14. Total number of payable-thru drafts processed.	—							14.
15. Total number of items bulk filed.	—							15.
16. Total number of items processed today.	10+11+12+ 13+14+15 =16							16.
17. Total dollar value of items in No. 11. (in dollars, no cents)	—	$	$	$	$	$	$	$ 17.

III. TRANSIT RETURNS

TRANSIT RETURN—items returned today for any reason that were originally sent out as transit items from this bank.

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
18. Total number of return items today.	—							18.
19. Total dollar value of items in No. 18. (in dollars, no cents)	—	$	$	$	$	$	$	$ 19.

Please report all actual counts.
Do *not* round off.

ITEMS MICROFILMED—total count of all check processing items filmed today.

IV. ITEMS MICROFILMED

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
20. Total number of items filmed prior to reader/sorter processing.	—							20.
21. Total number of items filmed after reader/sorter processing.	—							21.
22. Total number of items filmed during reader/sorter processing.	—							22.
23. Total number of items microfilmed today.	20+21+22 =23							23.

REJECTS—are items rejected for any reason on the first pass through a MICR reader/sorter.

HIGH-SPEED REJECT REENTRY—is the recapture of items rejected for any reason on the first pass through a MICR reader/sorter by repassing the items.

V. REJECTS

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
24. Rejects due to transit number only.	—							24.
25. Rejects due to account number only.	—							25.
26. Rejects due to dollar amount only.	—							26.
27. Rejects due to serial number only.	—							27.
28. Rejects due to trancode only.	—							28.
29. Rejects due to other reasons (unknown or multiple reasons).	—							29.
30. Total number of first-pass MICR rejects before high-speed reject reentry.	24+25+26 +27+28+29 =30							30.
31. Total number of first-pass MICR rejects remaining after high-speed reject reentry.	—							31.

32. Do you repair rejected items before high-speed reject reentry? (circle one) 1 No 2 Yes

EXCEPTION ITEMS—items or notification of items (such as debits, credits or inquiries) that may require reconcilement with other banks.

MISSENDS—items you missent or received from other banks that did not belong to you.

MISCODES (Encoding Errors)—dollar amount of miscoded items you sent or received from other banks.

LISTING ERRORS (Incorrectly Charged)—items listed for an amount different from the written amount that you sent or received from other banks.

FREE—items received but not listed on incoming cash letters. (Enclosed not listed.)

LOST—items listed on the incoming cash letter but not received. (Listed not enclosed.)

VI. EXCEPTION ITEMS

QUESTION	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		WEEKLY TOTAL	
	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved
33./34. Missends													33.	34.
35./36. Miscodes (Encoding Errors)													35.	36.
37./38. Listing Errors (Incorrectly Charged)													37.	38.
39./40. Free Items													39.	40.
41./42. Lost Items													41.	42.
43./44. Total exception items today 33+35+37+39+41=43 34+36+38+40+42=44	43.	44.	43.	44.	43.	44	43.	44.	43.	44.	43.	44.	43.	44.
45. Total dollar value of items in No. 43. (No Cents)	$		$		$		$		$		$		$ 45.	
46. Total dollar value of items in No. 44. (No Cents)	$		$		$		$		$		$		$ 46.	

LABOR MAN-HOURS—number of clerical and supervisory man-hours worked to complete each labor category listed. Separate estimated production from supervisory man-hours when appropriate for a working supervisor. Include general force man-hours used in appropriate labor categories listed.

MAN-HOURS—productive hours, not time card hours spent by department employees in completing the following tasks.

EXCEPTION ITEM MAN-HOURS—number of man-hours spent in discovering/resolving exception items for the calendar day.

PREPARATION MAN-HOURS—number of man-hours spent in receiving, batching, performing quality control, and preproving incoming deposits.

ENCODING OPERATOR MAN-HOURS—number of man-hours spent encoding the items received by your bank that were not encoded.

READER/SORTER OPERATOR MAN-HOURS—number of man-hours spent processing first pass items on the reader/sorter.

MICROFILM OPERATOR MAN-HOURS—number of man-hours spent microfilming the check processing items.

DATA CONTROL MAN-HOURS—consists of making MICR corrections or substitutions, preparing other entries for high-speed processing, controlling the movement of batches of items into and out of high-speed processing areas, balancing the transit and DDA entry runs, and preparing of daily settlement figures for departments involved in processing checks.

RETURN MAN-HOURS—number of man-hours spent in processing items returned to your bank that you had originally sent out as "on-others" items.

PAYING AND FILING MAN-HOURS—consists of processing "on-us" items, including the capture of MICR data preparing daily transaction files, updating customer master files, sorting paper documents, statement printing, management reports, verification of signature, date holds, stop payments, check filing, and statement rendering.

BULK FILING PRODUCTIVITY—number of man-hours spent in the capture of "on-us" MICR data, preparing daily transaction files, updating customer master files, cycle sorting daily "on-us" items for storage, retrieving and fine sorting cycle-to-date paper items, verifying stop payments, date holds and suspects, statement printing, and statement rendering.

CASH LETTER MAKE-UP MAN-HOURS—consists of processing outgoing ("on—others") items on computer and/or reader/sorter equipment, including the printing of cash letters, the fine sorting of items by destination, and the assembly and dispatch of these items, including any manual processing of quick kills and reader/sorter rejects.

VII. LABOR MAN-HOURS

QUESTION	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		WEEKLY TOTAL	
	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory
47./48. Total number of nonofficer man-hours to process the exception items in Nos. 43 and 44.													47.	48.
49./50. Total data control man-hours to process the items in No. 9.													49.	50.
51./52. Total single-pocket encoding operator man-hours to process the items in Nos. 3 and 4.													51.	52.
53./54. Total preparation man-hours to process the items in No. 9.													53.	54.
55./56. Total multipocket encoding operator man-hours to process the items in Nos. 5 and 6.													55.	56.
57./58. Total reader/sorter man-hours to process the items in No. 7.													57.	58.
59./60. Total operator man-hours for cash letter makeup in Nos. 10 and 11.													59.	60.
61./62. Total microfilm operator man-hours to process the items in Nos. 20 and 21.													61.	62.

VII. LABOR MAN-HOURS (continued)

QUESTION	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		WEEKLY TOTAL	
	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory
63./64. Total paying and filing man-hours to process the items in Nos. 12, 13, and 14.													**63.**	**64.**
65./66. Total bulk filing man-hours to process the items in No. 15.													**65.**	**66.**
67./68. Total man-hours to process return items in No. 18.													**67.**	**68.**
69. All other nonofficer man-hours used in check processing not reported in Nos. 47 to 68.	Hours: Description: Hours: Description: Hours: Description: **69.** Total		Hours: Description: Hours: Description: Hours: Description: **69.** Total		Hours: Description: Hours: Description: Hours: Description: **69.** Total		Hours: Description: Hours: Description: Hours: Description: **69.** Total		Hours: Description: Hours: Description: Hours: Description: **69.** Total		Hours: Description: Hours: Description: Hours: Description: **69.** Total		**69.**	
									70. Total of questions 47 to 69				**70.** Grand Total	

PLEASE COMPLETE THE FOLLOWING AT THE END OF THE WEEK

VIII. OUTSTANDING EXCEPTION ITEMS

NOTE: In order to obtain an accurate description of total exception dollars, please report the summation of dollar value for all debit and credit items outstanding. For example, if there are only two items over six months outstanding to report, a debit for $100 and a credit for $100, enter $200 on line 76 and enter 2 on line 82. If this is not possible, complete this section with "NA."

Total of Debit and Credit Outstanding Transit Exception Items	**Part of Total Exception Items (Debit and Credit) That Have Been Outstanding for:**				
	1 Month or Less	1-2 Months	2-4 Months	4-6 Months	Over 6 Months
71. $ ____ Amount	72. $ ____ Amount	73. $ ____ Amount	74. $ ____ Amount	75. $ ____ Amount	76. $ ____ Amount
77. ____ Items	78. ____ Items	79. ____ Items	80. ____ Items	81. ____ Items	82. ____ Items

Note: 71=72+73+74+75+76
77=78+79+80+81+82

83. Generally, our bank would: (circle one)

Always balance before items leave the bank, even if it means missing a transit deadline.	1
Attempt to balance before the items leave the bank, but will make a transit deadline even if balancing is incomplete.	2
Very seldom balance before the items leave the bank to make a transit deadline.	3

84. Our bank's experience over the last year indicates that exception items have: (circle one)

Why?

Grown 1 ____________________

Remained about the same 2 ____________________

Decreased 3 ____________________

85. The staff responsible for making adjustments and reconciliations over the last year has:

*Number of People**	1984	1985
Grown 1	86.	87.
Remained about the same 2		
Decreased 3		

**Number of full-time equivalent people.
Express part-time people as fractional of full-time people.*

NOTE: The productivity figures reported in this section should have been reported in the appropriate categories of earlier sections of the survey. This section should be completed if your bank utilizes on-line reject reentry techniques.

ON-LINE REJECT REENTRY—processing of items rejected from all first pass and subsequent passes of the MICR reader/sorter, using CRT or other automated devices to merge reject data directly to the MICR capture system.

ON-LINE REJECT REENTRY MAN-HOURS—making MICR corrections/substitutions through CRT or other automated device, controlling the movement of batches of items into and out of the high-speed processing job stream, balancing the transit and DDA reports, both first and subsequent passes, and providing daily settlement figures for all appropriate departments.

IX. ON-LINE REJECT REENTRY

QUESTION	Question Relationship	Weekly Total
88. Total number of reject items reentered on-line from first passes.	—	88.
89. Total number of reject items reentered on-line from subsequent passes.	—	89.
90. Total number of reject items reentered.	88+89=90	90.
91. Total man-hours to reenter reject items in No. 90	—	91.

92. Do you repair rejected items that are reentered on-line from first or subsequent passes? (circle one) 1. No 2. Yes

X. AUTOMATED REJECT PROCESSING

NOTE: The productivity figures reported in this section should have been reported in the appropriate categories of earlier sections of the survey. This section should be completed if your bank utilizes a system of automated processing of reject items.

AUTOMATED REJECT PROCESSING—processing of all nonmachinable items, including items rejected by the MICR reader/sorter, on *both first pass and subsequent passes,* using automated equipment for repair and data capture.

AUTOMATED REJECT PROCESSING MAN-HOURS—preparing reject items for processing (including attaching strips), processing the rejects, and balancing output.

93. Is your bank using automated reject processing? (circle one)

1. No **2.** Yes, exclusively **3.** Yes, in combination with manual methods

94. If not, does your bank plan to acquire automated reject processing capability? (circle one)

1. No **2.** Yes **3.** Undecided

95. If your bank uses automated reject processing, is it accomplished? (circle one)

1. On-line? **2.** Off-line?

96. If your bank uses automated reject processing, do you repair all fields, including account number? (circle one)

1. No **2.** Yes **3.** Yes, on selected banks **4.** Yes, but only if operator intervention is not required.

QUESTION	Question Relationship	Weekly Total
97. Total number of all rejects processed through automated reject systems.	—	97.
98. Total number of all rejects processed through manual reject systems.	—	98.
99. Total number of MICR rejects processed.	97+98=99	99.
100. Total man-hours used to process reject items in No. 99.	—	100.

TRUNCATION AT THE BANK OF FIRST DEPOSIT—check flow is truncated at the bank of first deposit, since payment information is transmitted by terminal entry to the bank's accounting system.

CHECK SAFEKEEPING AT PAYOR BANK—check flow is truncated after high-speed processing by the payor bank. Checks are not returned to customers, although check payment information is contained in a descriptive statement. Efficient item retrieval and image processing functions allow customer access to these items.

COOPERATIVE CHECK TRUNCATION—check flow is truncated after high-speed processing by the bank of first deposit. Payment information is forwarded to the payor bank by alternative means; for example, through the ACH (Participants in the National Association for Check Safekeeping would report activity under this category.)

ELECTRONIC CHECK PRESENTMENT—check flow is not truncated, however, payment information is transmitted by electronic means to the payor bank, where checks are delivered later.

DATA PROCESSING SERVICE TRUNCATION—item flow is truncated at the bank providing safekeeping and data processing services, particularly share drafts or NOW drafts, for other financial institutions.

XI. CHECK TRUNCATION

QUESTION	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
101. Total number of on-us items truncated at the bank of first deposit.							101.
102. Total number of on-us items for safekeeping at payor bank.							102.
103. Total number of transit items (on-others) truncated in cooperative program.							103.
104. Total number of transit items (on-others) transmitted for electronic check presentment.							104.
105. Total number of items (on-others) truncated as a part of data processing services provided.							105.
106. Total dollar value of items in No. 101.							106.
107. Total dollar value of items in No. 102.							107.
108. Total dollar value of items in No. 103.							108.
109. Total dollar value of items in No. 104.							109.
110. Total dollar value of items in No. 105.							110.

XII. COMMENTS

NOTE: The results of past BAI Check Collection Surveys have contained appendices devoted to commentary from the nation's check processing professionals. Please provide your comments so that this valuable forum can continue. How have conditions changed from last year? Attach a separate sheet if you need more space.

Personnel (Training and Turnover) __________

Transportation __________

Rejects (Rates and Handling) __________

Outstanding Exception Items __________

Returns and Adjustments __________

(over)

Automated Reject Processing

Equipment and Systems Problems

Security

Regulatory Impacts

Check Truncation (Safekeeping and Non-return)

Microcomputer Applications

Miscellaneous

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1985 SURVEY OF THE CHECK COLLECTION SYSTEM

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Bank Administration Institute

BAI is a unique professional services organization that offers research, information services, and professional development opportunities to bankers worldwide.

The Institute's independent, not-for-profit status enables it to serve bankers objectively - as both adviser and analyst. Through the Foundation for Financial Institutions Research, an Institute affiliate, BAI has strengthened its ability to analyze policies and issues that are more strategic in scope and effect.

BAI is a creative partnership, blending the policy-level experience of bankers worldwide with the specialized expertise of its professional staff. These bankers serve on the Institute's board of directors, technical commissions and advisory groups, ensuring that BAI meets changing needs with relevant programs and services.

The Institute presents information across a wide range of critically important areas, including management and administration; strategic planning; accounting, finance and control; audit and tax; corporate financial services; consumer financial services; and operations and technology. This information is conveyed through methods well-suited to the varying needs of banking professionals - ranging from research, technical conferences and educational programs to a broad and growing array of publications.

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CONTENTS

LIST OF FIGURES v

LIST OF TABLES ix

FOREWORD xiii

SURVEY HISTORY 1

1985 SURVEY RESPONDENTS 2

1985 SURVEY HIGHLIGHTS 3

THE MEASURES OF SYSTEM PERFORMANCE 5
- Reader/Sorter Reject Rates 6
- Transit Returns 12
- Free and Lost Items 15
- Missent, Miscoded, and Listing Error Items 16
- Exception and Return Items 17
- A Dollar Analysis of Return and Exception Items 19
- Outstanding Exception Items 19
- A Comparison of Balancing Policy and Experience 25
- Transit Holdover 25

BANK LABOR PRODUCTIVITY MEASUREMENT 27
- Labor Intensiveness 28
- Labor Distribution 30
- Data Control — Balancing and Correction 30
- Encoding Operations 31
- Check Receiving Operations 32
- Reader/Sorter Operations 33
- Cash Letter Makeup and Microfilming 34
- On-Us Processing - Labor Productivity 36
- Bulk Filing Labor Productivity 36
- Exception and Return Item Processing 38
- Reject Processing Productivity 40
- Labor Productivity Summary 42

PERFORMANCE MEASUREMENT STATISTICS 43
- Reject Reentry 43
- Automated Reject Processing 45
- Miscellaneous Statistics 47

CHECK TRUNCATION AND ELECTRONIC CHECK PRESENTMENT 51

APPENDICES

Appendix A: 1985 Banker Comments 53

Appendix B: 1985 Survey Tables 1 Through 62 63

Appendix C: 1985 Survey Questionnaire 139

LIST OF FIGURES

1 Participating Banks 2

2 Reject Rate 6

3 Distribution of the Reject Rate 7

4 Types of Rejects 8

5 Transit Number Rejects 9

6 Account Number Rejects 9

7 Dollar Amount Rejects 10

8 Serial Number Rejects 10

9 Trancode Rejects 11

10 Other Rejects 11

11 Transit Returns (Rate per 100,000 Items Sent) 12

12 Distribution of Transit Return Rate (Rate per 100,000 Items Sent) 13

13 Average Dollar Value of Transit Return Item 13

14 Distribution of Transit Return Dollars (Rate per 100,000 Sent) 14

15 Free and Lost Items Discovered (Rate per 100,000 Items Received) 15

16 Exceptions, Returns, and Rejects (to Total Items Processed) 18

17 Distribution of Exceptions, Returns, and Reject Rate 18

18 Distribution of Exception Items Outstanding (Percent of Dollars) 19

19 Distribution of Exception Items Outstanding (Percent of Items) 20

20 Percent of Outstanding Exception Items (Percent of Dollars — 1 Month Outstanding) 22

21 Percent of Outstanding Exception Items (Percent of Dollars — 1 - 2 Months Outstanding) 22

22 Percent of Outstanding Exception Items (Percent of Dollars — Over 2 Months Outstanding) 23

23 Percent of Outstanding Exception Items (Percent of Items — 1 Month Outstanding) 23

24 Percent of Outstanding Exception Items (Percent of Items — 1 - 2 Months Outstanding) 24

25 Percent of Outstanding Exception Items (Percent of Items — Over 2 Months Outstanding) 24

26 Transit Holdover Rate 26

27 Average Dollar Value of Holdover Item 26

28 Overall Labor Productivity 28

29 Distribution of Overall Labor Productivity 28

30 Distribution of Overall Labor Productivity by Tasks 30

31 Encoding Labor Productivity 31

32 Check-Receiving Productivity (Average) 32

33 Check-Receiving Productivity (Median) 32

34 Reader/Sorter Labor Productivity 33

35 Distribution of Reader/Sorter Productivity 34

36 Microfilming Labor Productivity 35

37 Bulk Filing Labor Productivity 36

38 Distribution of Bulk Filing Productivity 37

39 Exception and Return Item Productivity 38

40 Return Item Productivity 39

41 Exception Item Productivity 39

42 Reject Processing Productivity 40

43 Distribution of Reject Processing Productivity 41

44 Reject Rate (After High-Speed Reject Reentry) 43

45 Reject Reentry Productivity 44

46 Distribution of Reject Reentry Productivity 44

47 Automated Reject Processing 45

48 Manual Reject Processing 46

49 Distribution of Automated Reject Processing Rate 46

50 Percent of Incoming Items Encoded 47

51 Supervisory Time to Clerical Man-Hours (All Functions) 48

52 Supervisory Time to Clerical Man-Hours (Exception Item Processing) 48

53 Supervisory Time to Clerical Man-Hours (Microfilming) 49

54 Supervisory Time to Clerical Man-Hours (Return Items) 49

55 Supervisory Time to Clerical Man-Hours (Encoding) 50

56 Supervisory Time to Clerical Man-Hours (Cash Letter Makeup) 50

57 Check Safekeeping at Payor Bank (In Thousands) 51

58 Electronic Check Presentment 52

LIST OF TABLES

1 Survey Respondents by Geographic Area 64

2. Percent of Rejects on Reader/Sorter Equipment by Area 65

3. Distribution of the Reject Rate 66

4. Percent of First-Pass Rejects by Type and by Area 67

5. Transit Returns by Area 73

6. Distribution of the Transit Return Rate 74

7. Transit Return Dollar Value by Rate of Transit Returns 75

8. Free and Lost Items Discovered by Area 76

9. Free Items Discovered by Area 77

10. Lost Items Discovered by Area 78

11. Distribution of the Free and Lost Item Rate 79

12. Missent, Miscoded, and Listing Error Items Discovered by Area 80

13. Missent Items Discovered by Area 81

14. Miscoded Items Discovered by Area 82

15. Listing Error Items Discovered by Area 83

16. Distribution of Missent, Miscoded, and Listing Error Items Rate 84

17. Exception and Return Items Discovered by Area 85

18. Distribution of the Exception and Return Items Rate 86

19. Percent of Exceptions, Returns, and Rejects to the Number of Items Processed 87

20. Distribution of Exceptions, Returns, and Reject Rate 88

21. Return and Exception Item Dollar Analysis by Area 89

22. Age Distribution of Outstanding Exception Items 91

23. Age Distribution of Outstanding Exception Items by the Microfilming Method 93

24. A Comparison of Balancing Policy and Experience 95

25. Transit Holdover by Area 96
26. Distribution of the Transit Holdover Rate 97
27. Overall Labor Productivity 98
28. Overall Labor Productivity by Area 99
29. Distribution of Labor by Overall Labor Productivity 100
30. Balancing and Correction Labor Productivity 101
31. Encoding Labor Productivity 102
32. Encoding Labor Productivity for the Single-Pocket Machine 103
33. Encoding Labor Productivity for the Multipocket Machine 104
34. Items Encoded per Man-Hour by Percent of Pre-encoded Items 105
35. Check-Receiving Productivity 106
36. Reader/Sorter Labor Productivity 107
37. Cash Letter Makeup and Microfilming Labor Productivity 108
38. Cash Letter Makeup Labor Productivity 109
39. Microfilming Labor Productivity 110
40. On-Us Processing Labor Productivity 111
41. Percent of On-Us Items Received and On-Us Processing Labor Productivity 112
42. Bulk Filing Labor Productivity 113
43. Exception and Return Item Processing 114
44. Return Item Productivity 115
45. Exception and Return Item Productivity by Rate Discovered 116
46. Exception Item Productivity 118
47. Reject Processing Productivity by Area 119
48. Reject Processing Productivity 120
49. Reject Rate After Reader/Sorter High-Speed Reject Reentry by Area 121

50. Distribution of the Reject Rate After High-Speed Reject Reentry 122

51. Average Number of Rejects Reentered from the First Pass by Area 123

52. Average Number of Rejects Reentered from Subsequent Passes by Area 124

53. Reject Reentry Productivity by Area 125

54. Reject Reentry Productivity 126

55. Automated Reject Processing 127

56. Percent of Automated Reject Processing by Area 128

57. Distribution of the Automated Reject Processing Rate 130

58. Percent of Incoming Items Encoded 131

59. Percent of Supervisory Time to Clerical Man-Hours 132

60. Percent of On-Us Items 133

61. Percent of Payable-Through Drafts 134

62. Forms of Check Truncation 135

FOREWORD

BAI's fifteenth annual survey of banking's check collection system analyzes the system's performance for 1979-1985. This comprehensive survey contains important information on check processing operations and includes a general set of measures for evaluating and analyzing trends systemwide. Detailed survey findings include average reject rate, transit holdover, transit return items, employee productivity, check safekeeping, and electronic presentment.

The **1985 Survey of the Check Collection System** should provide assistance to financial institutions in evaluating their check processing operations and enable them to compare their bank experiences with their peers.

Bank Administration Institute acknowledges the work of William C. Fisher, principal research manager, in coordinating this project.

Marc J. Shapiro
Chairman of the Board
Bank Administration Institute

1985 SURVEY OF THE CHECK COLLECTION SYSTEM

SURVEY HISTORY

Banking's check collection system continues as our nation's primary payment system for handling transaction volume. This system, while using relatively specialized check handling equipment, is still labor-intensive in many of its related sub-operations. Although the interbank check exchange is often called the check collection system, it is, in fact, a loosely organized coordinated system. The procedures for control, crediting, security, and sorting are partially controlled by the Federal Reserve System and the Uniform Commercial Code and partially based on agreements between banks through correspondent banking relationships or clearing house arrangements.

Differences in competitive levels, as well as other factors, have caused significant differences in the resources, the productive capacity, and the quality of the various check processing operations in the commercial banking industry. Since each bank is responsible to its management for its own check processing operation, there is no central control responsible for total system performance. Yet, each bank would suffer if the check exchange process were to falter, because the entire system is based upon total cooperation and strict adherence to procedures by the participants.

Overall system performance varies over time because of changes in regulation, check volume, the labor market, transportation requirements, and technological development of systems and equipment, hence up-to-date information is necessary to enable each bank to compare its experiences with its peers.

In 1970, Arthur D. Little, Inc. (ADL), under the auspices of the Operations and Technology Task Force of the Monetary and Payments System (MAPS) of the American Bankers Association, collected and published data relative to the performance of banking's check collection system. The data were to be used as a basis for evaluating the adequacy of the check collection system by comparing it with similar data in future years. Therefore, ADL recommended a periodic collection of check volume data. The Atlanta Federal Reserve Bank Check Study, a project cosponsored by ABA, BAI, and the Federal Reserve System, represents follow-up research on the nation's check processing volume as it existed when the data were collected in June 1979.

Meanwhile, Bank Administration Institute has continued to conduct annual performance measurement surveys of the nation's check collection system. Since 1971, an annual survey has been conducted to collect data that would provide bankers with industry standards and a general set of measures for their own check processing operations. The results of each survey were also published by the Institute.

This report, the fifteenth in BAI's continuing program of monitoring the performance of banking's check collection system, analyzes the system's performance for the years 1979 through 1985. Survey data for 1971 through 1978 may be found in previous reports.

---

[1] The Outlook for the Nation's Check Payment System: 1970-1980. Cambridge, Massachusetts: Arthur D. Little, Inc., December 1970.

1985 SURVEY RESPONDENTS

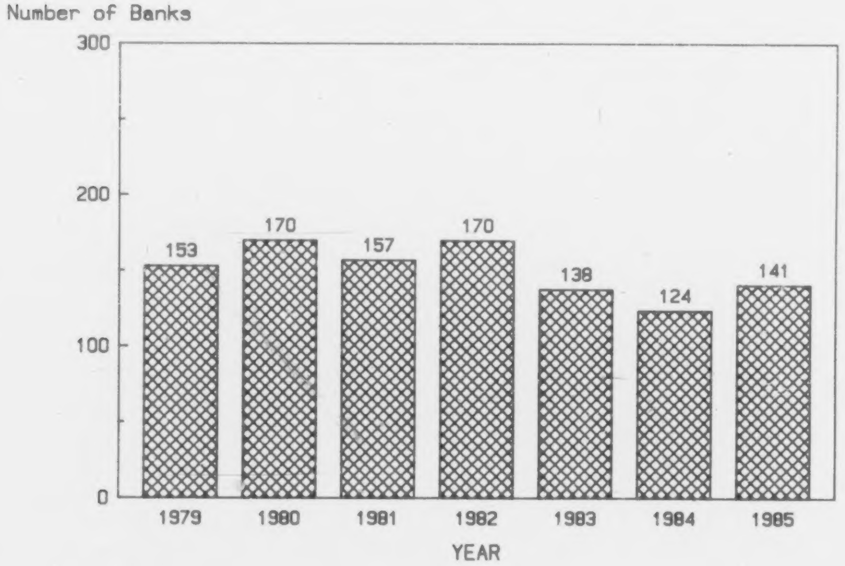
In August 1985, 200 commercial banks received the Institute's 1985 Check Collection Performance Measurement Survey questionnaire. Several banks that had been unable to participate in previous years were included in the survey distribution for 1985, while a few contributing institutions from previous years were unable to provide data this year. Participating banks collected data for the week of September 16-21, 1985. This was a new week in which to collect the survey data. Some prior survey weeks had contained a holiday, which created some difficulties in collecting data.

The total number of survey respondents is shown in Figure 1. The increase in participating banks is the result of continuous efforts by the Institute staff to get more banks involved that had not participated in the past while maintaining the solid base established in past surveys. Of the 141 survey respondents in 1985, 94 participated in the 1984 survey, thus providing a solid basis of continuity.

The survey respondents were from all 12 Federal Reserve Districts, representing 60 percent of the top 50 banks and 58 percent of the 100 largest banks in the United States. This respondent base is consistent with prior surveys.

The 1985 data represent 447 million checks processed, including 260 million transit checks and 187 million on-us items. According to the latest available information, each check is processed by an average of 2.4 financial institutions. These data were analyzed to determine overall collection performance in relation to past measurements and manpower utilization by check processing tasks.

Figure 1
Participating Banks



1985 SURVEY HIGHLIGHTS

Increased competition from the Federal Reserve and other institutions has forced banks to examine the efficiency of their check processing operations. Banks now are managing this traditionally "back room" operation as a business, emphasizing strategic planning, cost accounting, and automated processing strategies. The result has been a mixed improvement in payments processing productivity.

The mix of banks in this year's survey is different from that of previous years in that fewer of the top 50 banks participated. In reviewing individual banks' statistics on overall labor productivity, the findings were surprising. Despite a relatively modest 2 percent decrease in productivity for all banks, those banks with the largest item volumes experienced a nearly 4 percent decline in productivity.

It has been assumed that regional and small check-clearing banks have adopted the productivity improvement techniques successful in larger institutions. Clearly, some of these banks are beginning to approach the productivity levels achieved by their larger competitors. In the future it is likely that there will be a trend toward the implementation of manufacturing industry techniques to attain the productivity levels reached by other labor-intensive operations.

The check collection process has been made increasingly efficient over the years, particularly in the high-speed sorting process. But check collection continues to impose large labor costs, emphasizing how labor-intensive the process really is. Also, since collection of funds depends upon the physical presentment of the checks, financial institutions spend large sums on time-critical chartered transportation. Bankers should expect these costs to continue to increase, and as they do, the banks bearing these costs will have greater incentive to pursue electronic payment alternatives.

The survey revealed that encoding checks continues to require the largest percentage of total man-hours of all check-processing-related activities; 26 percent of total man-hours was devoted to encoding in 1985. Only 5 percent of the total man-hours was required actually to process the checks through reader/sorter equipment.

The processing of exception items is highly labor-intensive. The supervisory time devoted to this activity is indicative of management's concern about controlling labor costs associated with check processing operations.

Other survey findings:

1. The average reject rate dropped to 1.4 percent in 1985. Results also showed that 63 percent of the banks surveyed had reject rates at or below the national average.

2. Transit holdover rate declined to .7 percent in 1985. However, the average dollar value of a transit holdover increased to $718 from an average dollar value of $529 in 1984.

3. Transit return items increased to 819 items (per 100,000 transit items sent) from 702 items in 1984.

4. Return item productivity decreased to 50 return items processed per man-hour, down from an average of 52 items per man-hour in 1984.

5. The average number of checks processed by reader/sorter equipment increased to 16,013 items per man-hour, up from 15,059 items in 1984. The survey indicated that 35 percent of the banks had productivity in excess of 40,000 items per man-hour.

6. Overall labor productivity dropped to an average of 824 items per man-hour, a 2 percent decrease from 844 items in 1984.

7. Check safekeeping and electronic presentment, though still minor aspects of overall check processing activity, showed mixed improvement over 1984 levels. The total number of checks held in safekeeping dropped to 2.1 million items from 3.7 million items in 1984. The total number of checks presented for collection by electronic means jumped to 833,000 items from 244,000 in 1984.

THE MEASURES OF SYSTEM PERFORMANCE

The primary purpose of the BAI survey is to monitor the industry's check collection system performance. The system's performance can be measured in several ways: cost, speed, or the frequency of error. Although there may be many different ideas concerning what constitutes a system failure or an error, the survey and its succeeding analysis considered the following items to be representative of defects in the system's operation:

1. Reject rates.
2. Transit returns.
3. Free or lost items.
4. Missent, miscoded, and listing errors.
5. Transit holdovers.

Because banks use various definitions and data collection methods, the data presented on system failures have validity only when compared with data collected in the same manner.

Only minor modifications were made in the 1985 survey questionnaire. These changes did not appear to affect the collected data and were comparable to the previous survey data. If the responding banks collected the data in the same manner, the 1985 survey results will identify the changes that have occurred in the past year. All performance analyses for each subject are presented together.

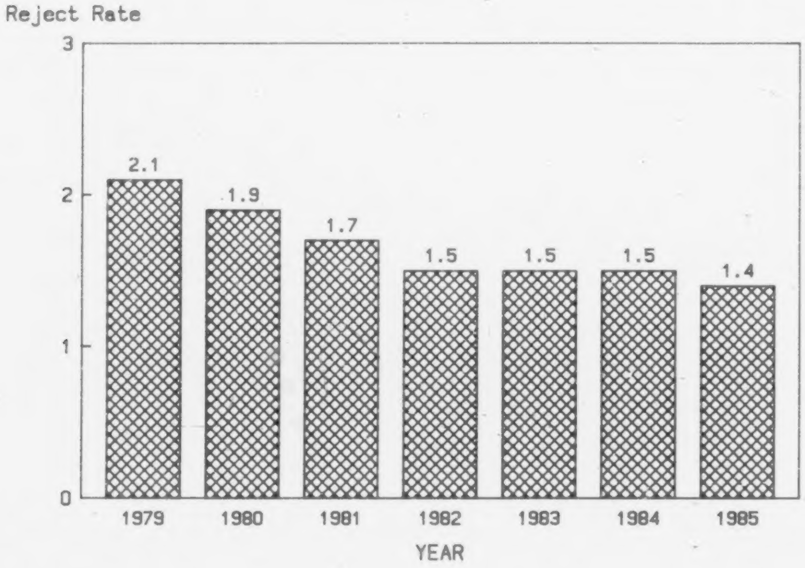
The formulas used in the calculation for each table are given to assist bankers in making their own comparisons. Several respondents could not answer every question in the survey because of their banks' internal systems. Consequently, only those banks that furnished valid answers to all questions pertaining to a given formula were considered in the calculations, which accounts for the varying number of respondents in the different tables.

Reader/Sorter Reject Rates

Definition: Percentage of items rejected for any reason by a MICR reader-sorter.

As shown in Figure 2, the average reject rate was 1.4 percent in 1985, lower than in 1984.

Figure 2
Reject Rate



Almost half the geographic areas showed an increase in their respective reject rates. The areas are ranked by reject rate as follows:

Area	Rate
Minneapolis/St. Paul	0.8%
Pittsburgh	1.1%
Cleveland	1.2%
San Francisco	1.2%
Denver	1.2%
Los Angeles	1.3%
Washington, D.C.	1.3%
Houston	1.4%
Dallas	1.4%
St. Louis	1.4%
Chicago	1.4%
Detroit	1.5%
Atlanta	1.6%
Philadelphia	1.8%
New York	1.8%
Boston	1.8%

Historical reject rates of each geographic area are shown in Table 2 of Appendix B.

An analysis of the reject rate indicates that 63 percent of the banks surveyed have reject rates at or below the national level, as shown in Figure 3. An analysis, however, shows that 9 percent of the banks still have reject rates in excess of 2.0 percent.

Figure 3
Distribution of the Reject Rate

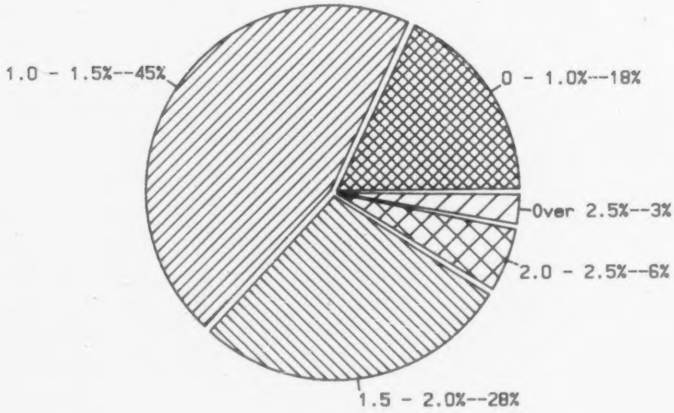
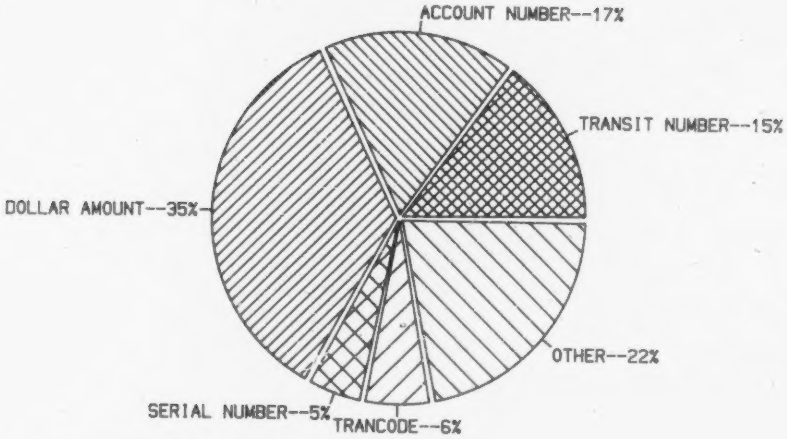


Figure 4
Types of Rejects



In analyzing the cause of rejects, the analysis continues to show that dollar-amount encoding errors continue to be the primary cause of prime-pass rejects, accounting for 35 percent of all rejects (Figure 4). This type of reject is among the most difficult for the industry to deal with, especially with the entry of new processors to the check collection system and the large number of pre-encoded items originating from the corporate and public sectors. Many banks have installed quality control departments and monitoring systems that allow them to identify by bank, customer, proof operator, and machine the exact source of encoding errors. Banks should also monitor the quality of encoding from lock box operations. Typically, these banks have reduced the number of encoding errors they experience.

Figure 3 also indicates that the printing industry has continued its efforts in quality control with regard to the printing of other fields in the MICR line. Many printers have implemented quality-control programs that have helped to reduce significantly the reject rate, but more can be done. Specifically, printers can ensure that their customers have provided them with adequate, accurate, and acceptable instructions. In addition, through their industry trade groups, they can improve the awareness level of their members about American National Standards Institute, Inc. (ANSI), standards and the need for quality control programs.

During 1985, the industry continued to struggle with the problem of embossment. Embossment rejects occur when the impact print heads hit the checks too hard, resulting in the magnetic ink being displaced from its intended position. Rejects occur because the resulting signal strength and/or waveshapes do not conform to standards. In addition, extraneous ink and voids can occur. Several pieces of equipment are available that measure the level of embossment. Working through the ANSI X9B Committee, the industry is developing adequate standards to which everyone can adhere.

Figures 5 through 10 show the historical trend for each type of reject. Additional information is shown in Table 4 of Appendix B.

Figure 5
Transit Number Rejects

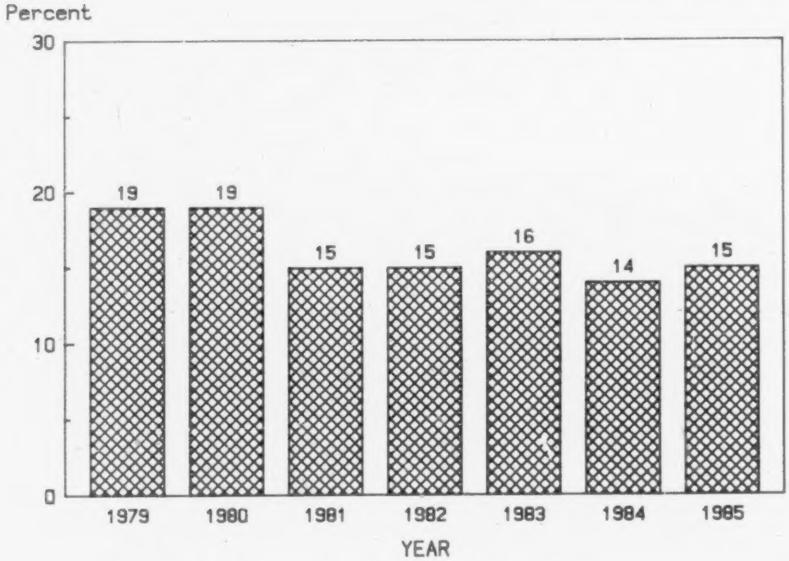


Figure 6
Account Number Rejects

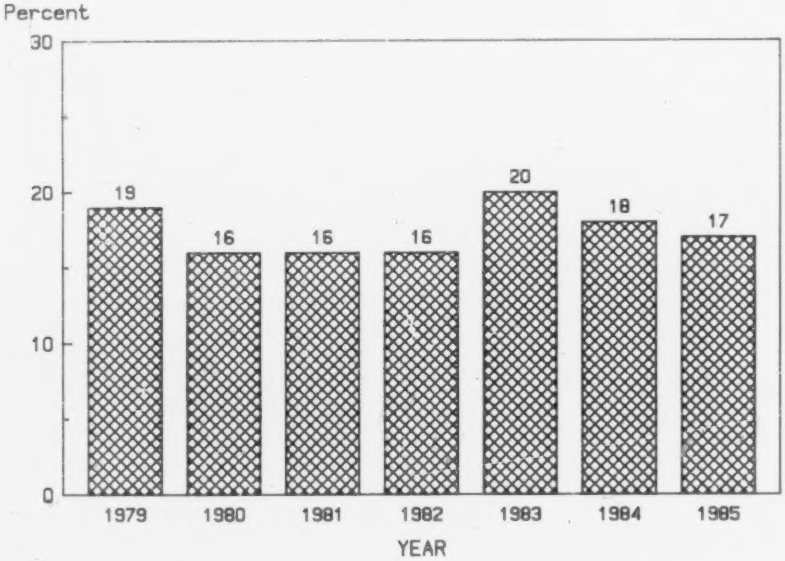


Figure 7
Dollar Amount Rejects

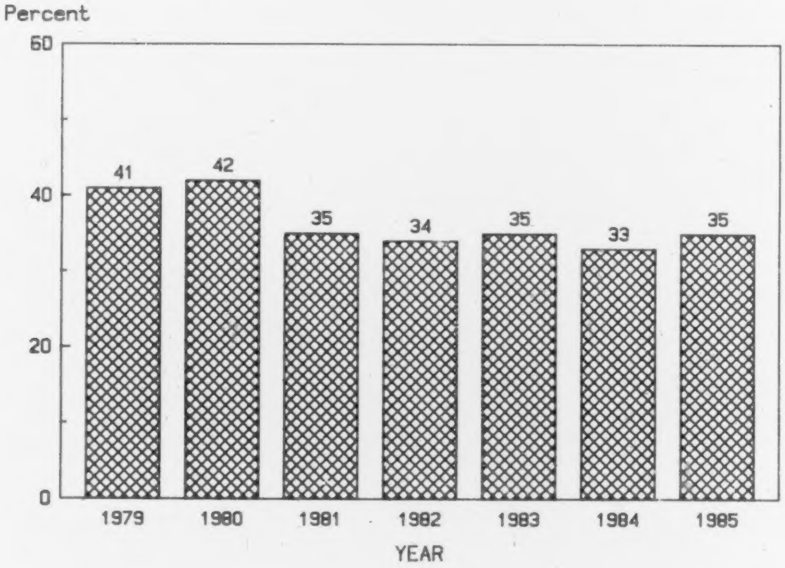


Figure 8
Serial Number Rejects

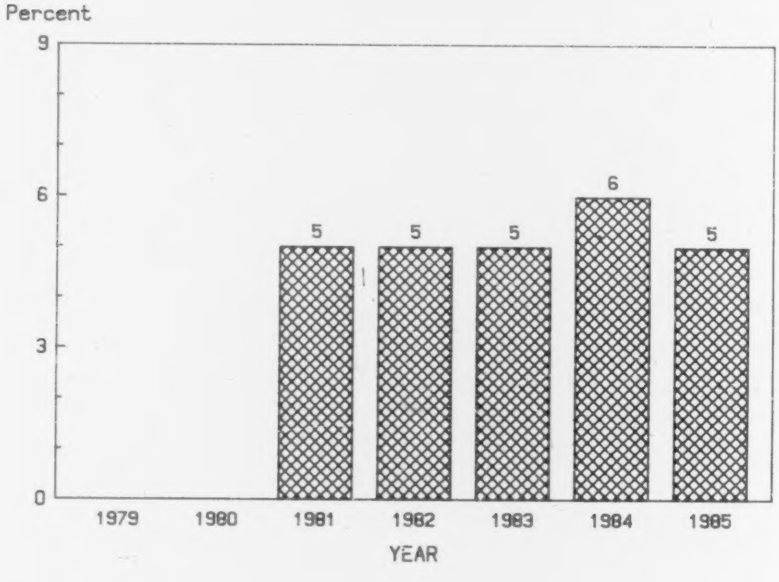


Figure 9
Trancode Rejects

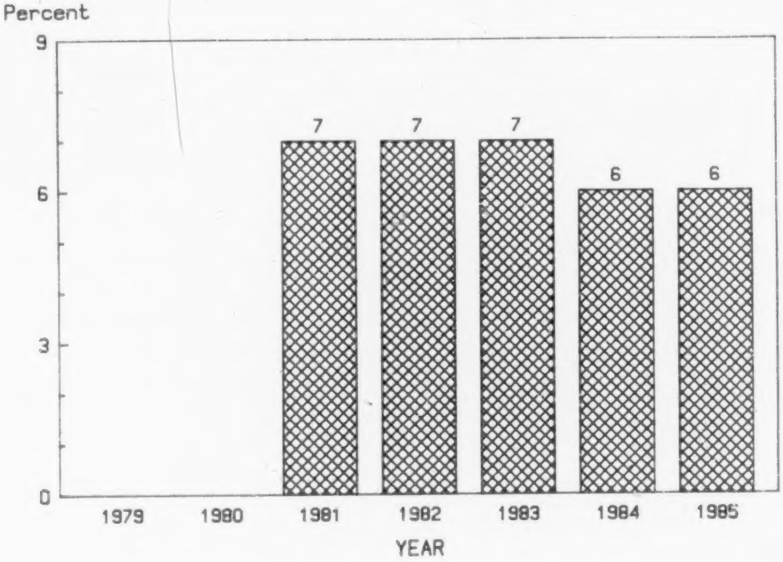
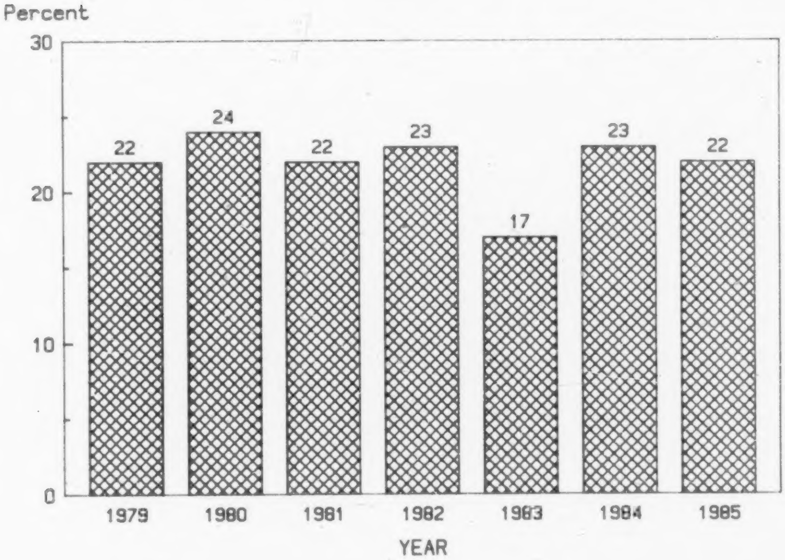


Figure 10
Other Rejects

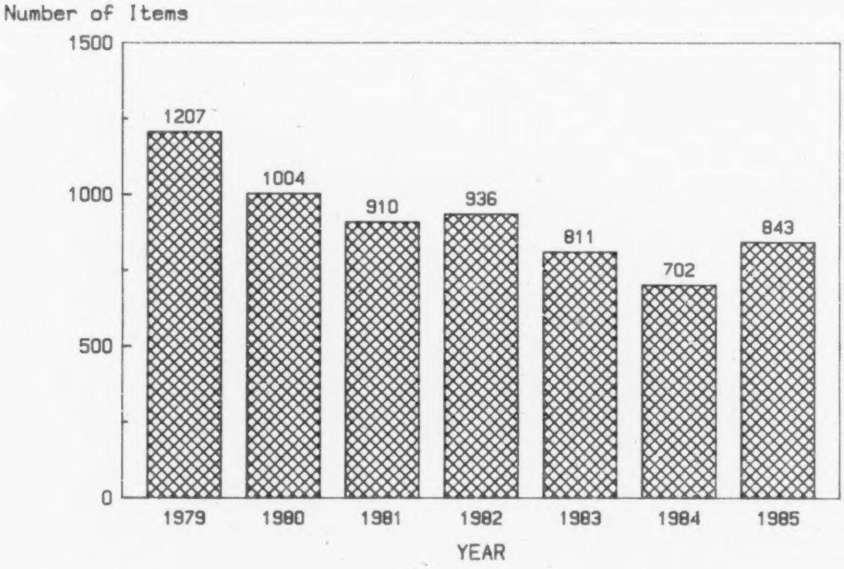


Transit Returns

Definition: Items returned today for any reason that originally were sent out as transit items from this bank.

The average rate increased to 819 items per 100,000 transit items sent in 1985 from 702 items in 1984. As shown in Figure 11, the transit return rate has declined steadily since 1979, when the rate was 1,207 items per 100,000 transit items sent. The increase in 1985 was due more to economic conditions than to any other single factor.

Figure 11
Transit Returns (Rate per 100,000 Items Sent)



As shown in Figure 12, 19 percent of the banks surveyed had transit return rates of less than 600 items, while 12 percent of the banks had transit return rates in excess of 1,200 items.

The average dollar value of a transit return item increased to $869 in 1985 from $828 in 1984. The historical trend is shown in Figure 13.

Figure 12
Distribution of Transit Return Rate
(Rate per 100,000 Items Sent)

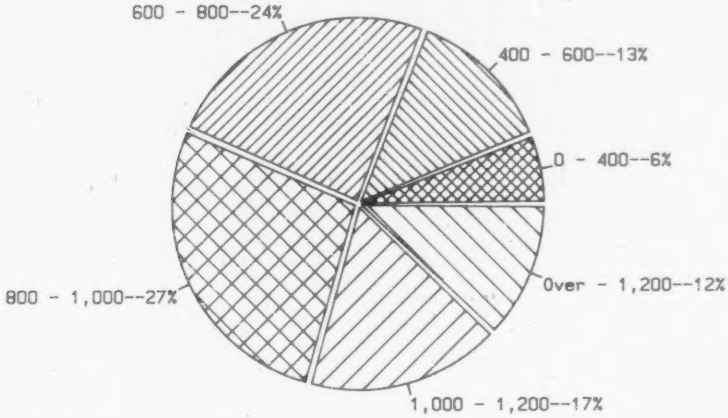


Figure 13
Average Dollar Value of Transit Return Item

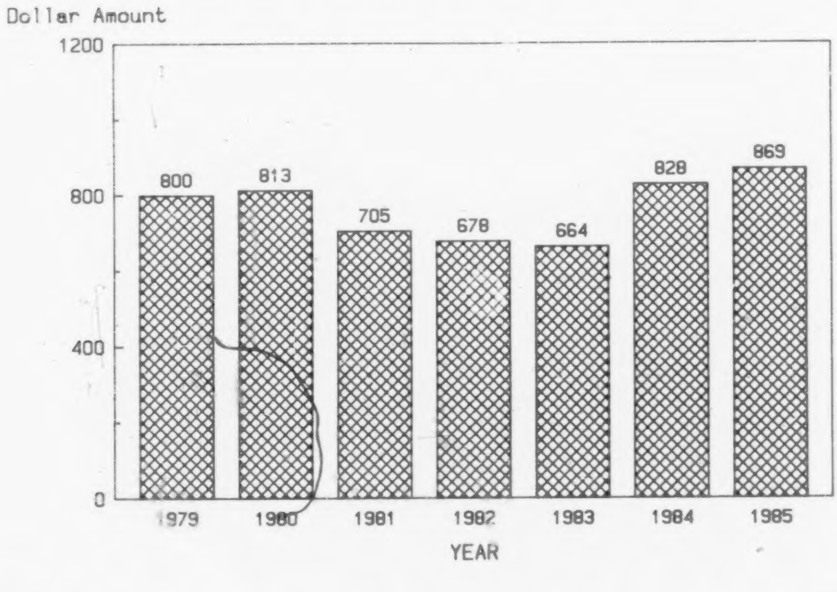
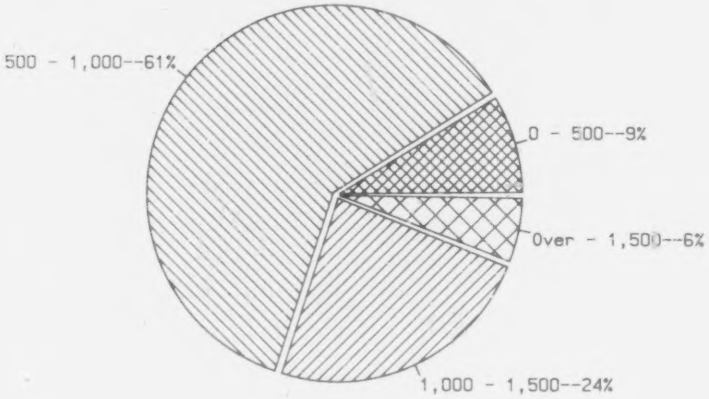


Figure 14
Distribution of Transit Return Dollars
(Rate per 100,000 Sent)



Return items continue to be a major problem for the industry and the public as well. During 1985, several states passed laws dealing with "delayed availability" and "check hold policies." Several more states are in the process of adopting similar legislation. While the intent of these legislative actions is to provide protection to consumers from excessive hold policies by all types of depository institutions, the apparent result is less than satisfactory to both the consumers and the industry.

Historically, hold policies have been established to protect the banks from losses resulting from checks being returned. These holds have in turn delayed the availability of deposited funds to the depositing customer.

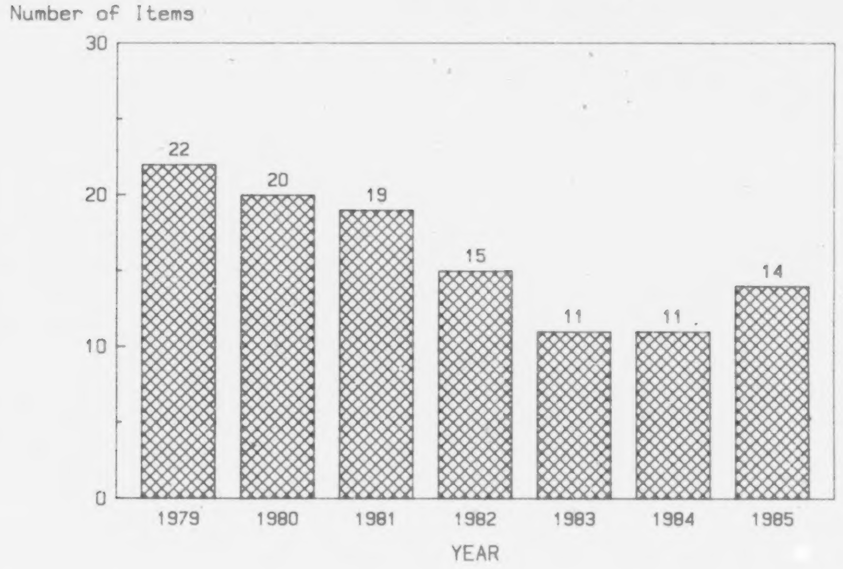
Free and Lost Items

Definition: Free items are items received but not listed on the incoming cash letter. Lost items are items listed on the incoming cash letter but not received.

The combined average rate of free and lost items discovered rose to 14 items per 100,000 incoming items in 1985, as shown in Figure 15.

Additional information is provided in Tables 8 through 11 of Appendix B.

Figure 15
Free and Lost Items Discovered
(Rate per 100,000 Items Received)



Missent, Miscoded, and Listing Error Items

Definition: Items that are discovered to have been missent for any reason, or that have been miscoded by this bank or other banks, or that are listed for one amount but drawn for a different amount.

The average rate of missent, miscoded, and listing error items discovered for each 100,000 transit items sent increased to 14 items in 1985 from 12 items in 1984.

With respect to geographic areas, San Francisco reported the lowest rate, 9.2 items. Washington, D.C., led this year's list with 34.7 items as compared to 9.5 items in 1984.

Many banks have reduced staff levels in 1985 to obtain greater economies of scale and more efficient operations. The question needs to be asked, however: Given the decrease in quality that is reflected in greater amounts of time spent by the adjustments staff, is the cutting of operational staff truly cost justified?

Additional information is provided in Tables 12 through 16 of Appendix B.

Exception and Return Items

Definition: Transit items that require special reconcilement with other banks, such as missent, miscoded, listing errors, returns, and free and lost items.

The average rate of exception and return items discovered increased to 866 items per 100,000 items sent in 1985 from 731 items per 100,000 items sent in 1984.

Thirty-two percent of the banks had rates greater than 1,000 items in 1985, which is in marked contrast to the 14 percent of the banks that were above the 1,000 item level in 1984.

The survey indicates that the percent of exceptions, returns, and reject items to the total volume of items processed remained at 1.9 percent in 1985 (Figure 16).

The survey also indicates that 57 percent of the banks had rates less than 2.0 percent in 1985 as compared to 66 percent of the banks in 1984 (Figure 17). Additional information is provided in Tables 17 through 20 of Appendix B.

Figure 16
Exceptions, Returns, and Rejects to Total Items Processed

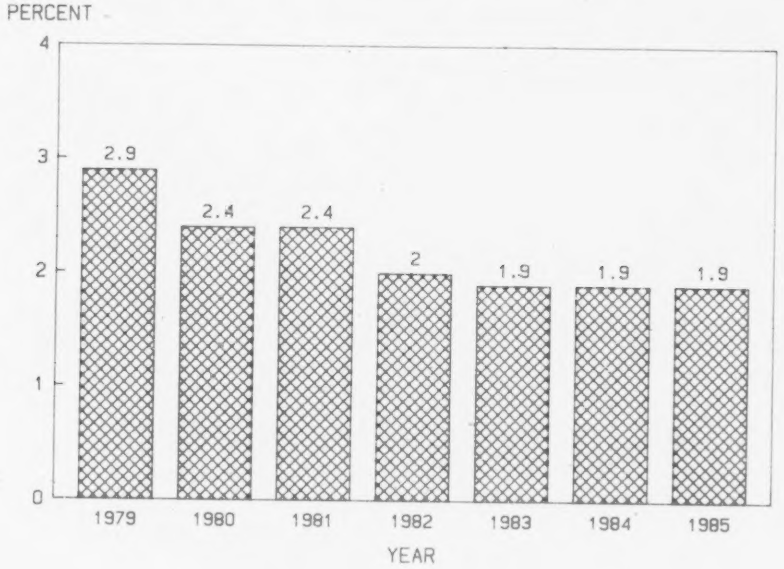
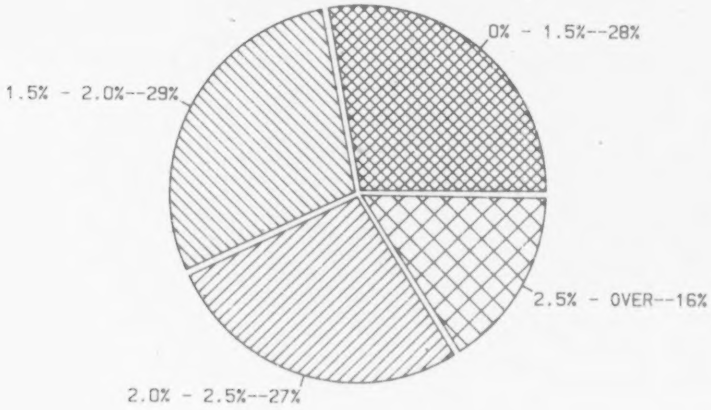


Figure 17
Distribution of Exceptions, Returns, and Rejects Rate



A Dollar Analysis of Return and Exception Items

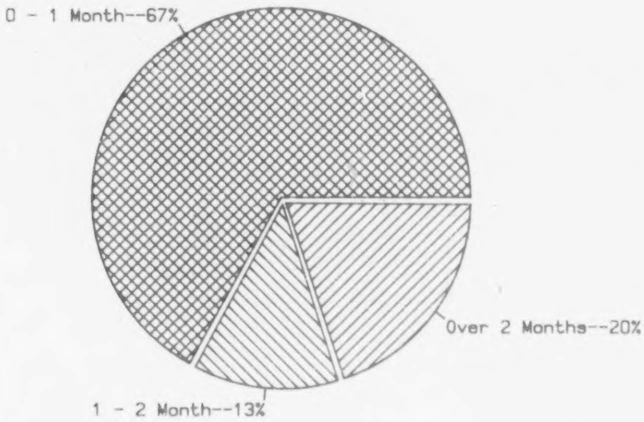
The average dollar value of a return item processed increased to $869 in 1985 from $828 in 1984. The total weekly dollar value of exception items discovered increased by 6 percent, to $14,817,000, in 1985. However, the total weekly dollar value of exception items resolved decreased by 7 percent, to $9,273,000, in 1985. Additional information is provided in Table 21 of Appendix B.

Outstanding Exception Items

Outstanding exception items are a key indicator of how the industry makes decisions regarding the use of resources for resolving exception items. In 1985, 67 percent of the dollars outstanding were resolved in less than one month, as shown in Figure 18. This compares with the 78 percent of dollars that were resolved in less than one month in 1984.

The industry is striving to resolve outstanding exception items more quickly. The number of items resolved in less than one month improved from 82,390 in 1984, to 86,296 in 1985. However, the total dollar amount for these items fell to $404 million in 1985 from $572 million in 1984. This suggests more supervisory time is needed to analyze how to clear large dollar exceptions more quickly.

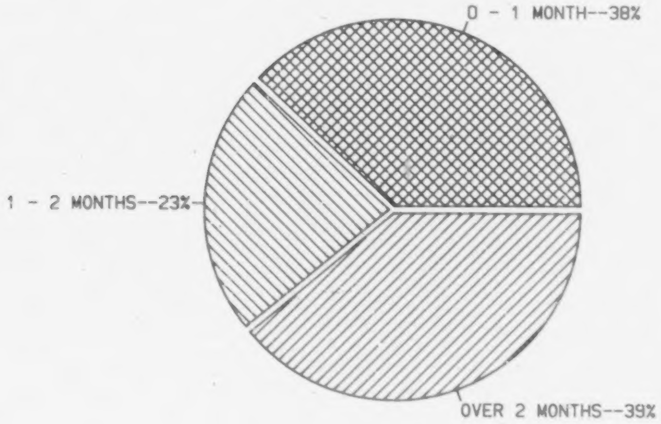
Figure 18
Distribution of Exception Items Outstanding
(percent of dollars)



Bankers are concentrating their reconcilement efforts on the high-volume/ low-dollar exception items. Of the items outstanding, 38 percent were resolved in less than one month in 1985 (Figure 19). In 1984, 28 percent of the items outstanding were resolved in less than one month, which reflects continued recognition of the high cost of float and the implied operating costs associated with exception item processing.

As indicated in the 1984 survey, the marketplace has developed several innovative procedures and software packages to improve the efficiency of the reconcilement process. With greater micro computer use in banking, more product offerings are expected in the industry.

Figure 19
Distribution of Exception Items Outstanding
(percent of items)



To understand better the long-term trends in the reconcilement of exception items, the following graphs were prepared:

Figure	
20	Percent of Outstanding Exception Items 0 to 1 Month Outstanding: Dollars
21	Percent of Outstanding Exception Items 1 to 2 Months Outstanding: Dollars
22	Percent of Outstanding Exception Items over 2 Months Outstanding: Dollars
23	Percent of Outstanding Exception Items 0 to 1 Month Outstanding: Items
24	Percent of Outstanding Exception Items 1 to 2 Months Outstanding: Items
25	Percent of Outstanding Exception Items over 2 Months Outstanding: Items

In addition to analyzing the outstanding exception items as indicated, the age distribution of outstanding exception items was compared also for the average bank according to the method used to microfilm items: after reader/sorter processing, before reader-sorter processing, or during reader/sorter processing. Because of the differences in resources and sizes of the respondent banks, the amount and the number of items outstanding should not be compared. The key comparison is the relative percentage. The survey data indicate that banks have made progress in reducing the age of outstanding exception dollars, particularly for items filmed during and after reader/sorter processing. A significant increase in outstanding exception items was experienced in those items microfilmed before reader/sorter processing.

Additional information is provided in Tables 22 and 23 of Appendix B.

Figure 20
Percent of Outstanding Exception Items 0 to 1 Month Outstanding: Dollars

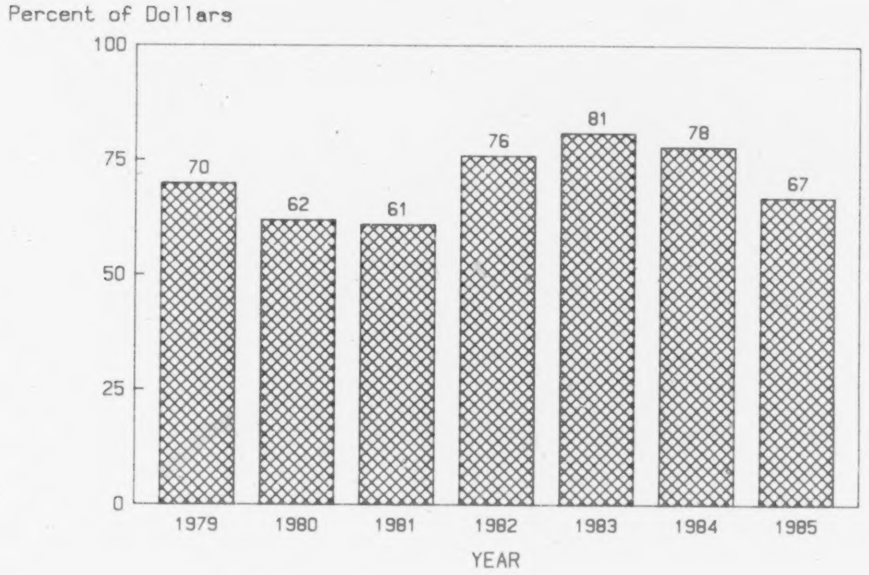


Figure 21
Percent of Outstanding Exception Items 1 to 2 Months Outstanding: Dollars

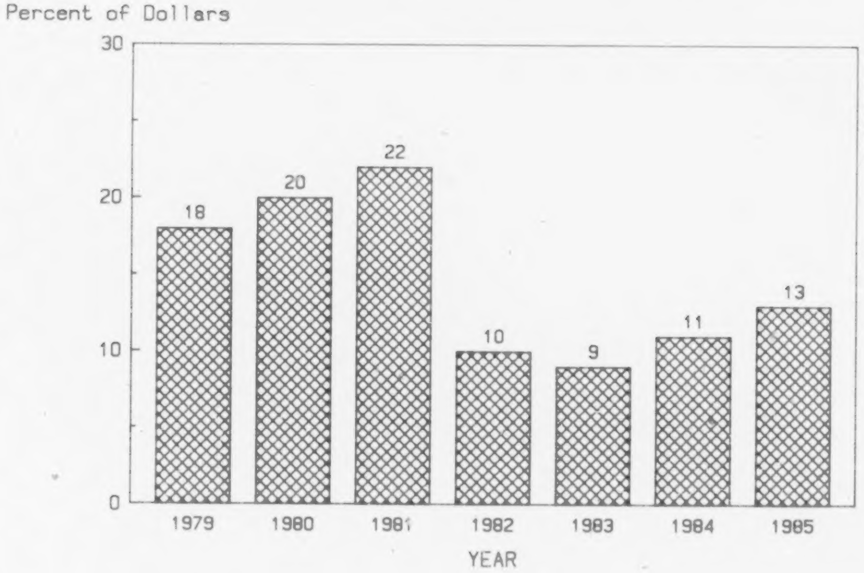


Figure 22
Percent of Outstanding Exception Items over 2 Months Outstanding: Dollars

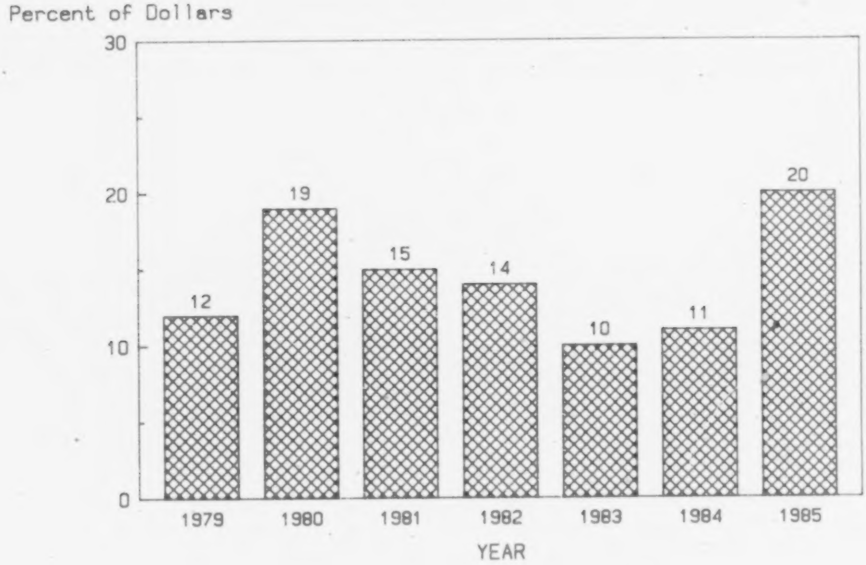


Figure 23
Percent of Outstanding Exception Items 0 to 1 Month Outstanding: Items

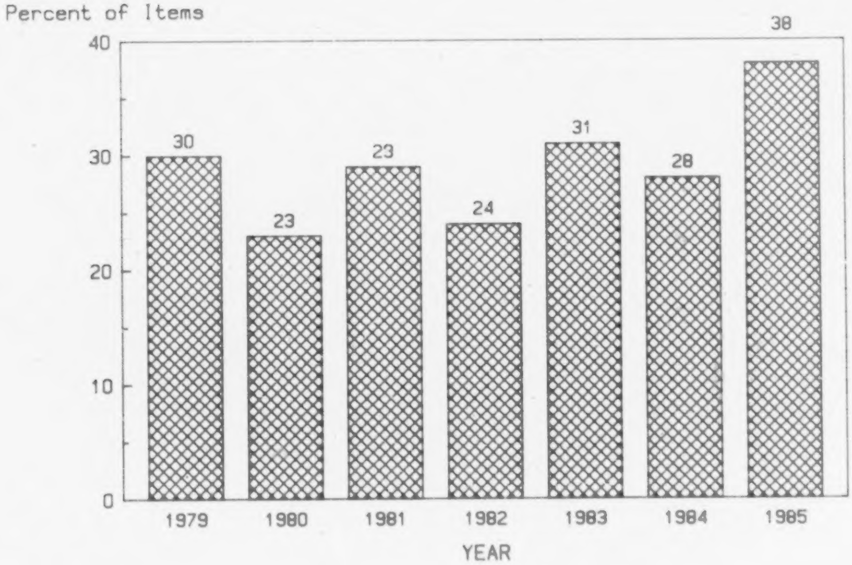


Figure 24
Percent of Outstanding Exception Items 1 to 2 Months Outstanding: Items

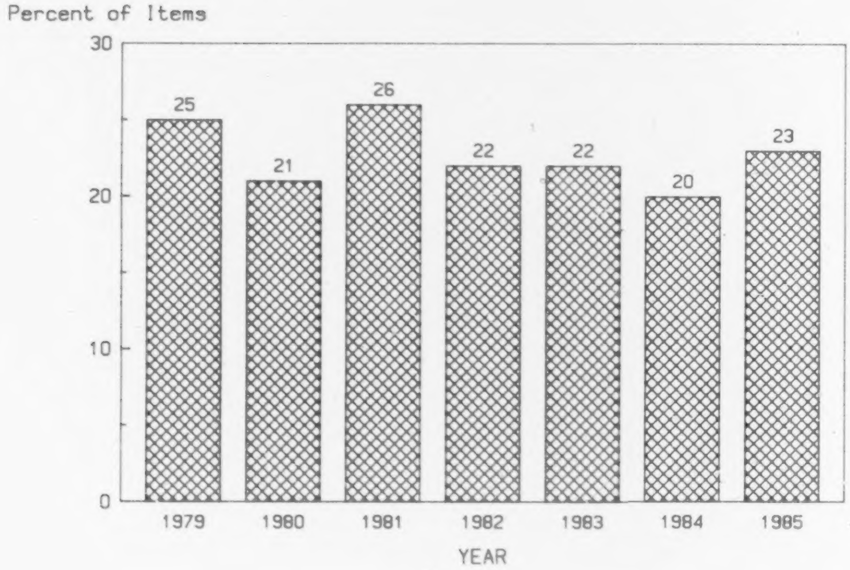
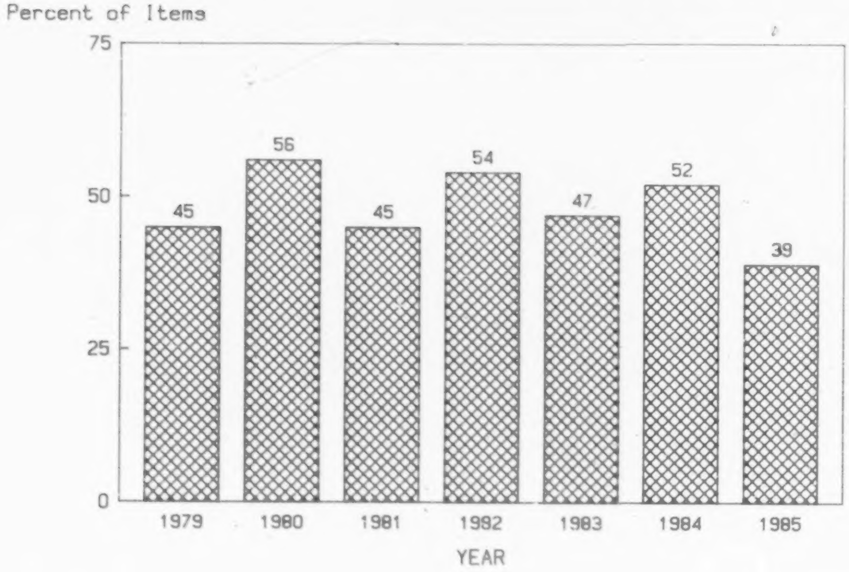


Figure 25
Percent of Outstanding Exception Items over 2 Months Outstanding: Items



A Comparison of Balancing Policy and Experience

Since 1971, information has been gathered about balancing policy and the individual growth of exception items and the staff to process these items. In 1985, the trend was consistent with prior years in that banks continue to recognize the high cost of float and will send out unbalanced cash letters if they are within certain specified limits. The survey indicates that while 48 percent of the bankers believe that the exception item volume has grown, only 26 percent have increased their staffing levels. In addition, overall staffing levels decreased by 1 percent in 1985 as compared to a 4 percent decrease in 1984. Added information is provided in Table 24 of Appendix B.

Transit Holdover

Definition: Items in transit holdover are those items that were received by a bank before a deadline but were not processed by either high- or low-speed systems in time to be sent for collection. These items may result in a loss of float to the bank and/or its customers.

The transit holdover rate dropped significantly, to .7 percent in 1985 (Figure 26). However, the average dollar value of a transit holdover rose to $718 in 1985 from $529 in 1984 (Figure 27). The median dollar value of a transit holdover decreased to $526 in 1985 from $519 in 1984.

The survey indicates that 89 percent of the banks have transit holdover rates of less than 1 percent in 1985 as compared with 81 percent of the banks in 1984.

The Federal Reserve has continued its float reduction efforts through explicit pricing, adjustments, fractional availability (which is scheduled to be eliminated in 1986), improvement to the interdistrict transport system (ITS), and implementation of the high-dollar group sort. The result has been to eliminate float from the Federal Reserve system and to pass that float back to the banking community. Bankers, in turn, have developed several systems that identify and quantify the amount of float that they then charge back to their customers.

Currently, there is a market disintermediation as some banks adjust to Federal Reserve actions without a corresponding adjustment to their customer accounts. In time, this disintermediation may disappear between banks and their customers. Bankers must continue their efforts to reduce transit holdovers and to allocate properly the associated float to their respective customers. Some holdover float, however, is the result of inefficient operations. In these cases, banks must establish customer policies that deal with how the cost of float is allocated.

Additional information is provided in Tables 25 and 26 of Appendix B.

Figure 26
Transit Holdover Rate

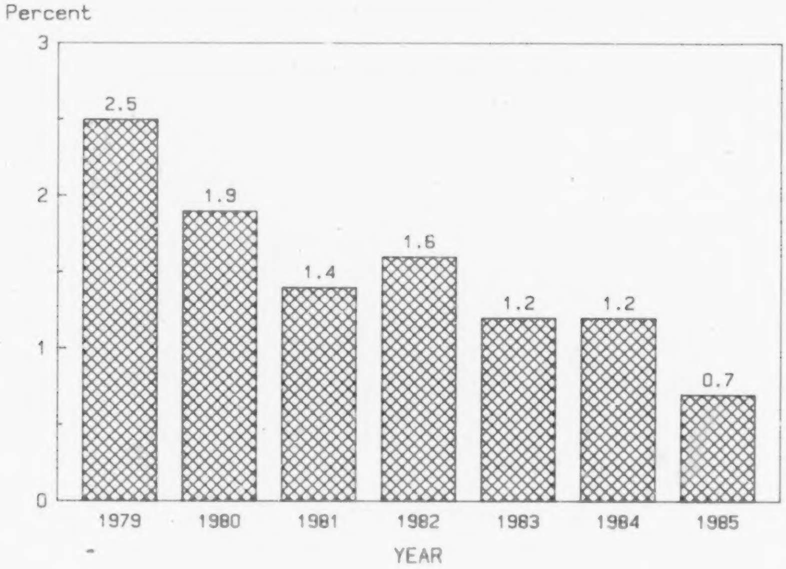
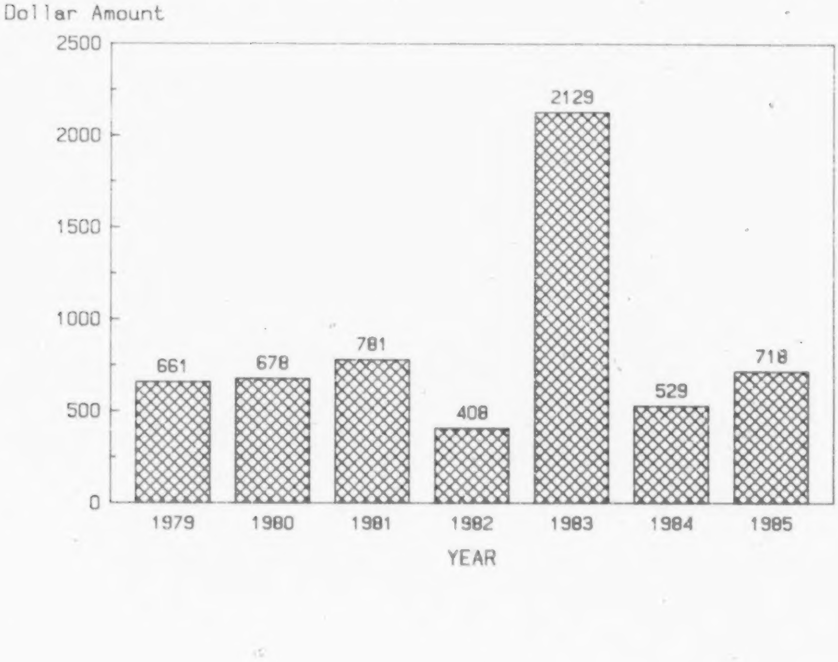


Figure 27
Average Dollar Value of Holdover Item



BANK LABOR PRODUCTIVITY MEASUREMENT

This section of the survey on check processing productivity presents an analysis of the data gathered concerning the distribution of manpower according to the following major task groupings:

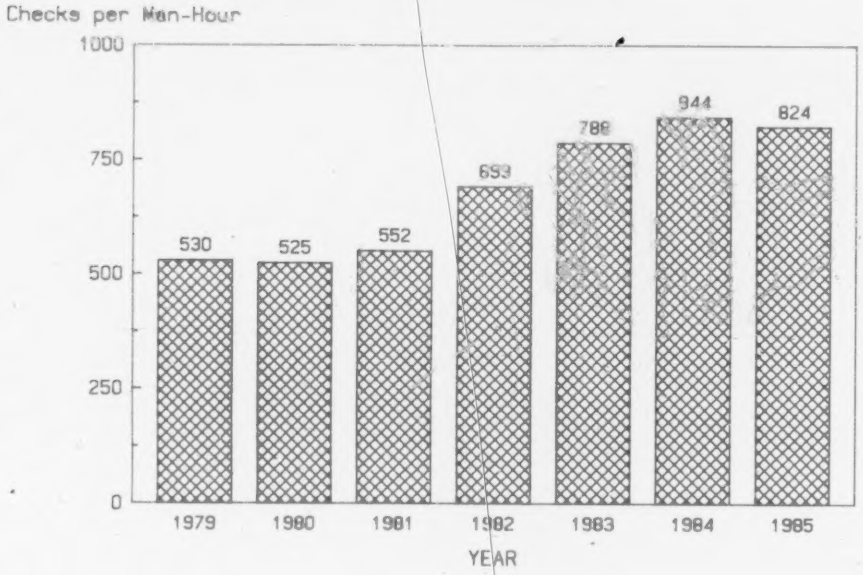
1. Data control (balancing and correction).
2. Encoding operations.
3. Check receiving operations.
4. Reader/sorter operations.
5. Cash letter makeup.
6. Microfilming operations.
7. On-us processing and return item processing.
8. Exception item processing.
9. Reject processing.
10. Bulk filing.

The labor data reported were generally comprehensive. The problem of rounding was eliminated by requesting the actual item count. Productive man-hours rather than man-days provided a more uniform time base. Both the average and the median of the distributions were calculated. Caution should be exercised when comparisons are made between the following data and individual bank statistics. A wide variety of variables can account for rather significant deviations from the national and geographic norms. In addition, productivity is measured in man-hours not machine-hours. (This is especially important with respect to reader/sorter productivity.)

Labor Intensiveness

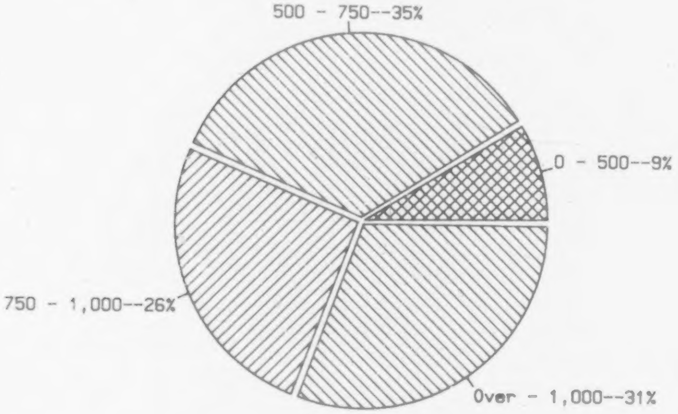
Labor productivity declined 2 percent, to an average of 824 items per man-hour in 1985, from 844 items per man-hour in 1984 (Figure 28). The median decreased to 868 items per man-hour in 1985 from 1,093 items in 1984.

Figure 28
Overall Labor Productivity



The survey indicates that 44 percent of the banks have overall productivity rates below 750 items per man-hour (Figure 29), while 31 percent of the banks have rates that exceed 1,000 items per man-hour.

Figure 29
Distribution of Overall Labor Productivity



Regarding the geographic differences that exist, the survey found the relative rankings to be:

Area	Rate
San Francisco	1,196
St. Louis	981
Philadelphia	956
Pittsburgh	926
Denver	912
Chicago	889
Boston	857
Cleveland	847
Dallas	827
Washington, D.C.	814
Atlanta	799
Houston	765
Los Angeles	718
Detroit	655
New York	497
Minneapolis/St. Paul	320

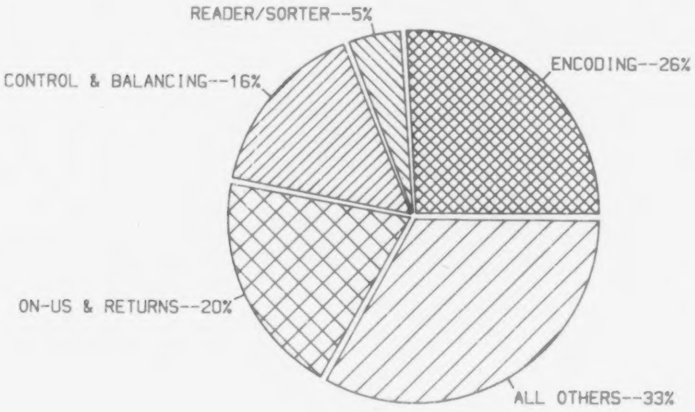
Historical productivity rates for each geographic area and additional information are given in Tables 27 and 28 of Appendix B.

Labor Distribution

A distribution of the major tasks performed in check processing is illustrated in Figure 30. The survey showed that the encoding function involved 26 percent of the total man-hours devoted to check processing in 1985. By contrast, only 5 percent of the total man-hours is required actually to process checks through the reader/sorter equipment.

In 1980, two new tasks - check receiving (Task C) and bulk filing (Task H) - were added to the survey. Each of the tasks, A through I, will be described. Additional information is provided in Table 29 of Appendix B.

Figure 30
Distribution of Overall Labor Productivity by Tasks

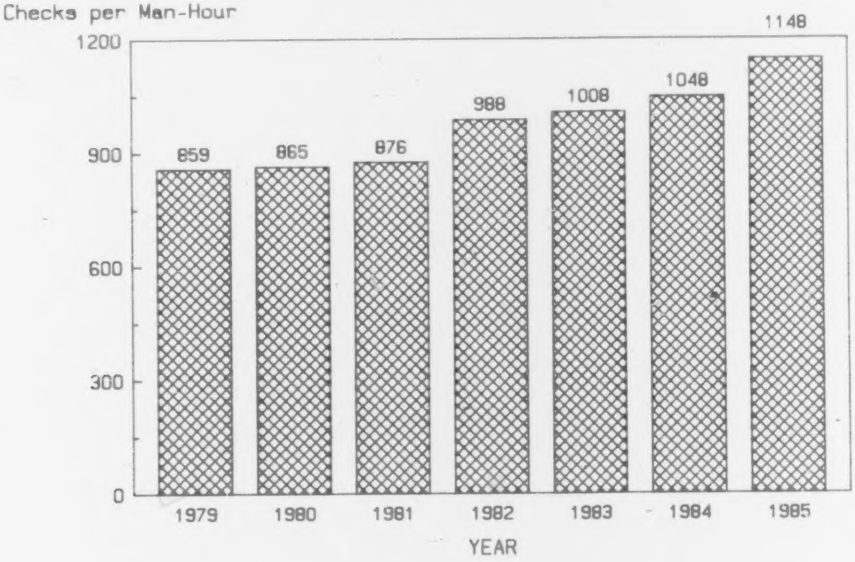


Data Control — Balancing and Correction

In 1985, average balancing and correction productivity decreased 10 percent, to 5,305 items per man-hour from 5,890 items per man-hour in 1984. The median productivity, however, decreased by 2 percent, to 6,160 items per man-hour from 6,269 items per man-hour in 1984. Additional information is provided in Table 30 of Appendix B.

Encoding productivity has continued to increase since 1979 (Figure 31). The survey shows that the combined average for both multipocket and single-pocket proof machines was 1,148 items per man-hour in 1985 as compared to 1,048 items per man-hour in 1984. The continued use of incentive programs and quality-control techniques has contributed to this increase. Additional information is provided in Tables 31 through 34 of Appendix B.

Figure 31
Encoding Labor Productivity



Check-Receiving Operations

The current survey indicates that some loss has occurred in check-receiving operations (Figure 32). In 1985, the average productivity was 10,466 items per man-hour, down from 11,703 items per man-hour in 1984. The median productivity was 14,022 items per man-hour in 1985 as compared to 15,699 items per man-hour in 1984 (Figure 33). Additional information is provided in Table 35 of Appendix B.

Figure 32
Check Receiving Productivity (Average)

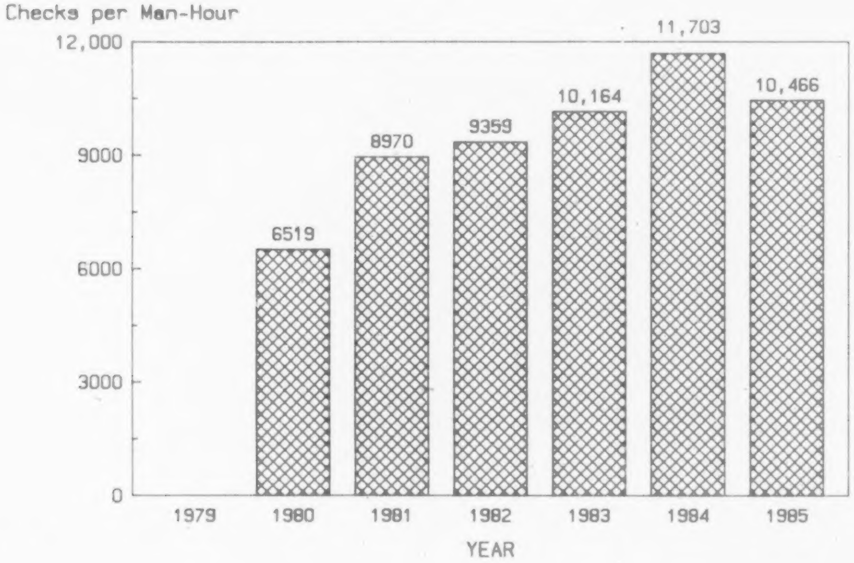
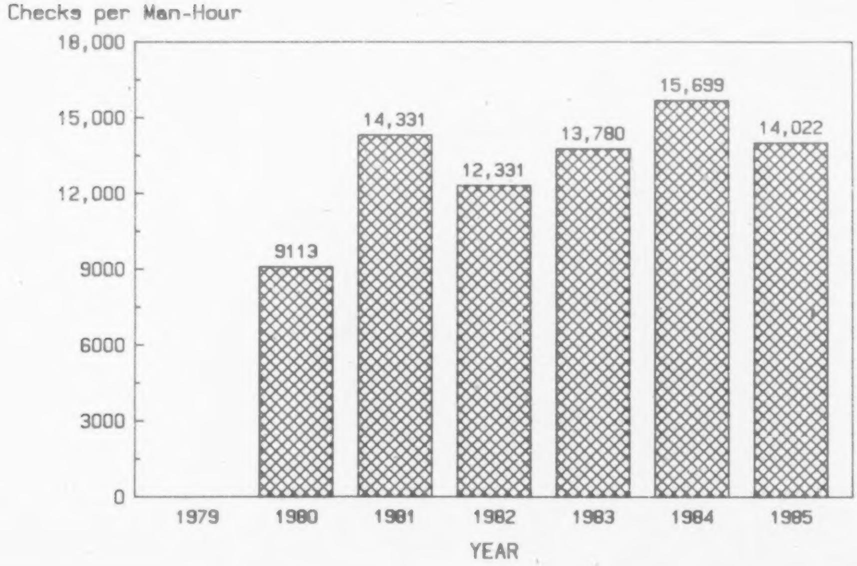


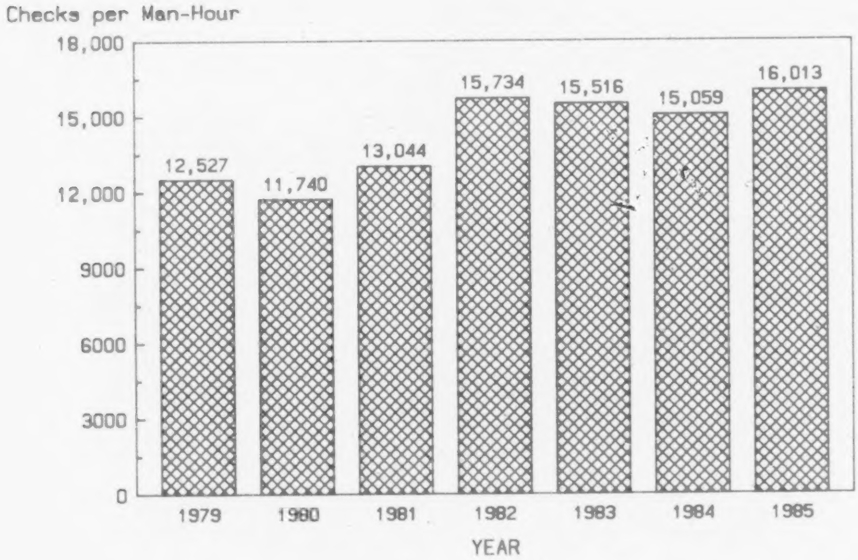
Figure 33
Check Receiving Productivity (Median)



The average number of checks processed by reader/sorter operations increased to 16,013 items per man-hour in 1985 (Figure 34). In 1984, the number of items per man-hour was 15,059.

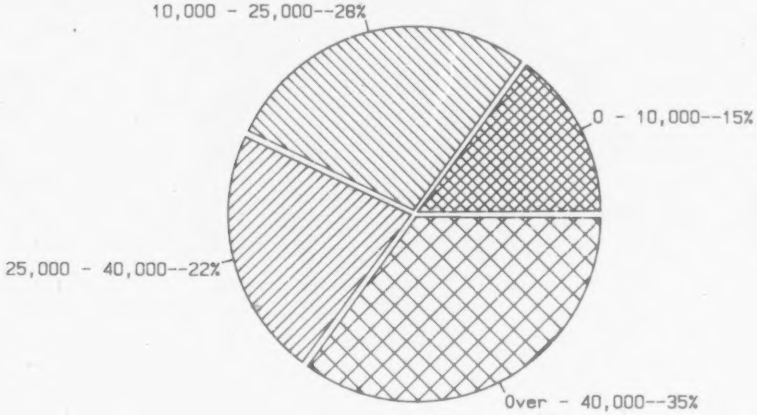
Hardware manufacturers seem to be producing better equipment, smaller institutions are upgrading their utilization of such equipment, and operators are continuing their efforts to handle greater volumes of checks productively.

Figure 34
Reader/Sorter Labor Productivity



The survey indicates that 35 percent of the banks have reader/sorter productivity in excess of 40,000 items per man-hour (Figure 35). Additional information is provided in Table 36 of Appendix B.

Figure 35
Distribution of Reader/Sorter Productivity



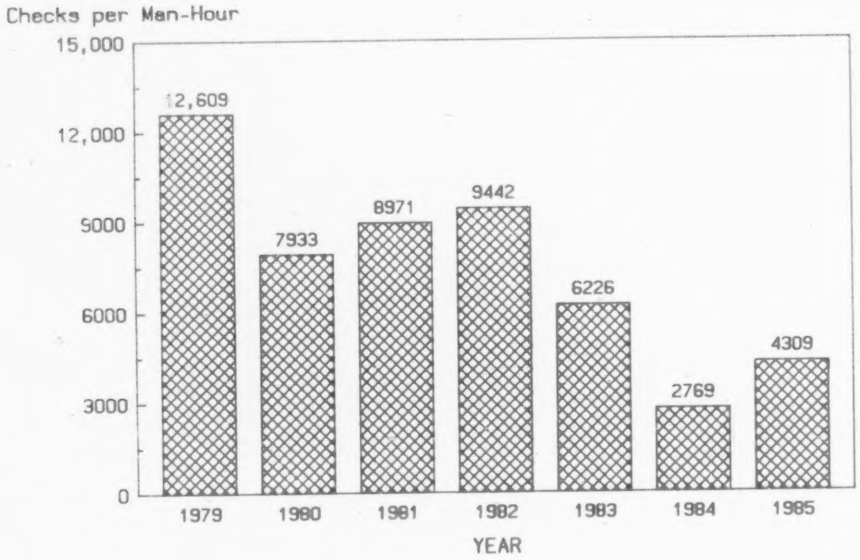
Cash Letter Makeup and Microfilming

Combined cash letter makeup and microfilming labor productivity decreased to 6,883 items per man-hour in 1984 as compared to 6,923 items in 1983.

A separate analysis was done for cash letter makeup and microfilming. Average cash letter makeup productivity increased 19 percent in 1984, to 8,508 items per man-hour, up from 7,173 items in 1983. The median increase was only 11 percent, or 9,059 items per man-hour in 1984, up from 8,161 items in 1983.

Microfilming productivity jumped significantly in 1985 (Figure 36). The survey indicates that the average productivity rose to 4,309 items per man-hour in 1985 as compared to 2,969 items in 1984. While the analysis failed to identify the cause of the increase in microfilming productivity, several scenarios could account for this situation. Among the possible explanations are better-maintained equipment, better reporting of hours on this activity, and microfilming quality-control programs. Additional information may be found in Tables 37 through 39 of Appendix B.

Figure 36
Microfilming Labor Productivity



One note of interest and caution is in order if comparisons between banks and the Federal Reserve are made: Banks are required to microfilm all checks in order to be able to reconstruct deposits, while the Federal Reserve has not adopted that procedure as an operational policy.

On-Us Processing - Labor Productivity

Average on-us productivity increased to 1,389 items per man-hour in 1985 from 1,352 items in 1984. The median decreased 3 percent, to 1,529 items per man-hour in 1985, from 1,578 items in 1984.

Bulk Filing Labor Productivity

Bulk filing labor productivity was first measured in 1981, and since that time a large number of banks have implemented bulk filing. However, because of the wide variances in how bulk filing has been installed and how man-hours are reported, caution should be exercised when BAI survey results are compared to an individual bank's operations.

The survey indicates that the average productivity in bulk filing was 4,198 items per man-hour in 1985 as compared to 4,467 items in 1984 (Figure 37). The productivity in the bulk filing of items seems to be consistent since it was first measured in 1981 (Figure 38). Additional information is provided in Table 42 of Appendix B.

Figure 37
Bulk Filing Labor Productivity

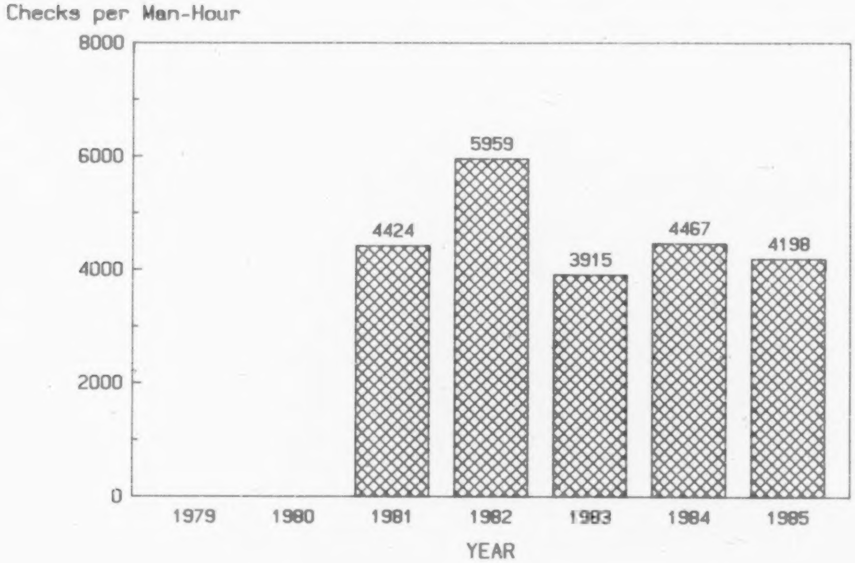
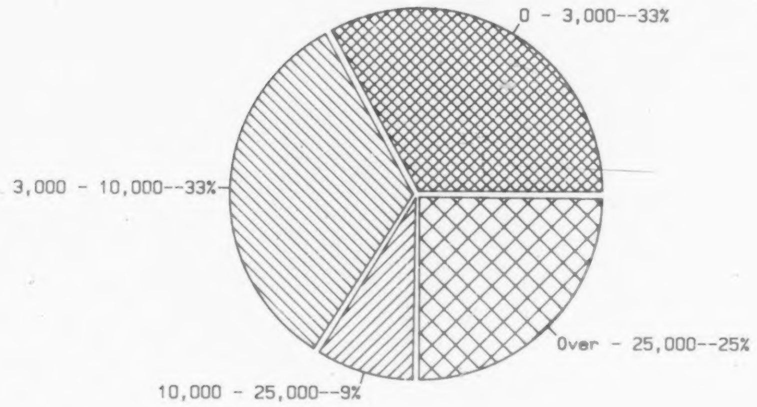


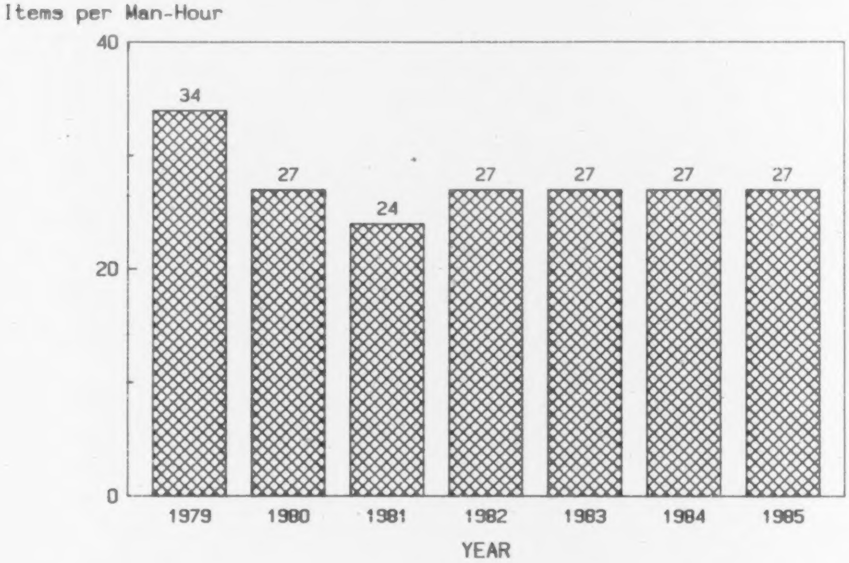
Figure 38
Distribution of Bulk Filing Productivity



Exception and Return Item Processing

Exception and return item processing remained flat at 27 items per man-hour (Figure 39). While the industry has reversed its downward trend in this area, two factors are most evident: First, banks are not processing these items today as well as they were six years ago. Second, when compared to the overall labor productivity of 824 items per man-hour, the labor intensiveness is readily apparent.

Figure 39
Exception and Return Item Productivity



The analysis indicates that return item productivity is commanding significant attention (see comments on supervisory time under Miscellaneous Statistics in the Performance Measurement Statistics section), but productivity is decreasing (Figure 40). In 1985, return item productivity decreased to 50 items per man-hour from 52 items in 1984. Exception item processing productivity has remained steady at three items per man-hour since 1979 (Figure 41). Additional information is provided in Tables 43 through 46 of Appendix B.

Currently, several efforts are underway that address return item issues. One effort involves the work of the Federal Reserve's Return Item Advisory Group. Consisting of representatives from the Federal Reserve, the American Bankers Association, the U.S. League of Savings Institutions, the Credit Union National Association, the Bank Administration Institute, and representatives from all types of depository institutions, this group is attempting to resolve the highly complex issues involving return item processing.

Figure 40
Return Item Productivity

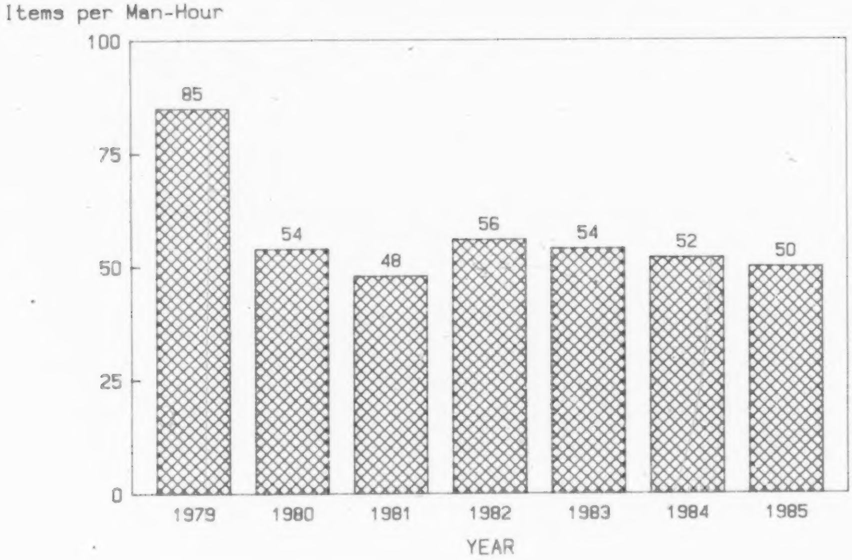
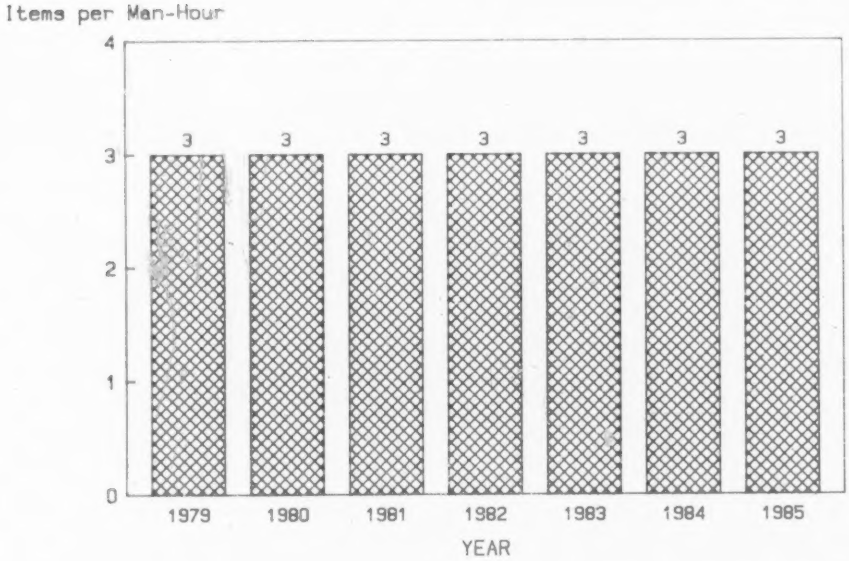


Figure 41
Exception Item Productivity



A second effort is the work in progress of the American National Standards Institute (ANSI) X9B Committee. This committee and its working group have reviewed three different technologies from Burroughs Corporation, IBM, and Recognition Equipment, Incorporated. However, this group has been unable to develop an effective standard.

A third effort was the implementation in October 1985 of Large Dollar Return Item Notification. This requires that for returned checks of $2,500 or more, the payor bank returning the check must send a notification--a wire, a telephone call, or the check itself--to the bank of first deposit by midnight after the date of receipt. The goal is to give the bank of first deposit advance warning that the check is coming so that it can protect itself from potential losses.

The fourth effort is a return item process proposed by Valley National Bank in Phoenix, Arizona. Here, the concept is to use the forward, high-speed collection process. A special envelope would be used for the actual item, and the bottom of the envelope would be encoded with the bank of first deposit's machine-readable identification number. The envelope and the item would then be processed in the normal, forward-processing stream.

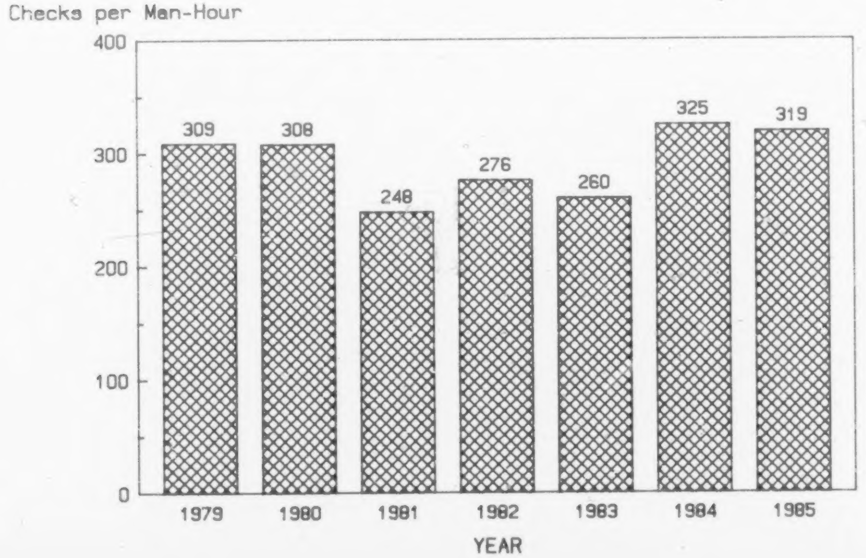
A test of the Valley Bank Proposal began in November 1985, organized by the American Bankers Association and supported by the Federal Reserve. Seventy-five financial institutions are participating, and results are expected in March 1986.

The above-mentioned efforts demonstrate the cooperation within the financial industry for improving the return item process. These cohesive industry efforts are needed to attain goals beneficial to all.

Reject Processing Productivity

The survey indicates that reject processing productivity decreased to 319 items per man-hour in 1985 from 325 items in 1984 (Figure 42).

Figure 42
Reject Processing Productivity

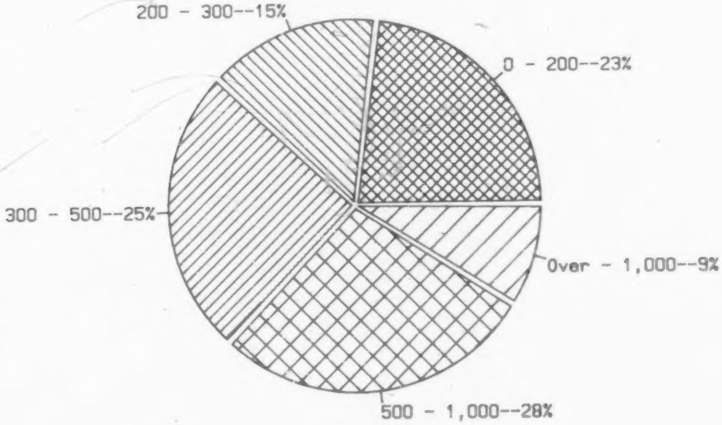


The analysis indicates that geography is not a factor in the survey data changes from 1984 to 1985. The areas are ranked by productivity rate as follows:

Area	Rate
Philadelphia	600
Denver	560
Los Angeles	536
Boston	448
Detroit	353
Dallas	337
San Francisco	335
Atlanta	292
New York	285
Washington, D.C.	284
St. Louis	272
Pittsburgh	263
Chicago	248
Houston	242
Minneapolis/St. Paul	220
Cleveland	199

In 1985, 9 percent of the banks achieved productivity in excess of 1,000 items per man-hour (Figure 43). In contrast, 38 percent of the banks had productivity of less that 300 items per man-hour. This wide variance in productivity can best be accounted for by looking at the differences in how banks process rejects. As expected, those banks that have automated systems have higher productivity than those that rely solely on manual methods. Additional information is provided in Tables 47 and 48 of Appendix B.

Figure 43
Distribution of Reject Processing Productivity



Labor Productivity Summary

As previously noted, overall check processing productivity dropped 2 percent in 1985 as compared to 1984. Most of the individual tasks associated with check processing showed improvement. However, much of the check processing operation still remains labor-intensive and when measured against reader/sorter productivity, those areas show much lower efficiency.

As banking deregulation continues and new competitive pressures are brought to bear on banks by nonbank organizations as well as the Federal Reserve, the challenge for check processing professionals will be to manage check processing better as a business, implementing technology and management skills that will make them more efficient and keep their products competitive in the marketplace.

The nation's payment system has made significant strides in recent years, but much has yet to be accomplished. Whether one chooses to believe the predictions of the Federal Reserve Bank of Atlanta, which project that the volume of checks will start to decrease in the 1990s, or the projections of private industry sources, which predict that the volume of checks will increase in the 1990s, one thing appears to be certain: Checks will not disappear overnight. Recognition of this fact should serve to motivate everyone involved in check processing to do a better job.

In reviewing the trends in check processing, it is estimated by the Federal Reserve Bank of Boston that 41 billion checks were written in 1985. The growth trend is 3 percent-5 percent per year, and this is expected to continue through the early 1990s. MICR is more than 25 years old. Technology is being refined, not invented. Our experience leads us to believe that common sense and the desire for profitability will shape the future.

The business of banking in the future will be information-based, and checks provide the foundation for that information. Bankers will see renewed competition between old and new players. The Federal Reserve will continue its dual role as a regulator and a formidable competitor. The demand for new check-related services and products will afford the financial industry many new and challenging opportunities.

In 1978, the first performance measurement statistics were added to the annual survey to provide for a more refined breakdown than had been requested previously of the reasons for rejects. The second reason was to determine the usage and productivity of automated reject processing equipment.

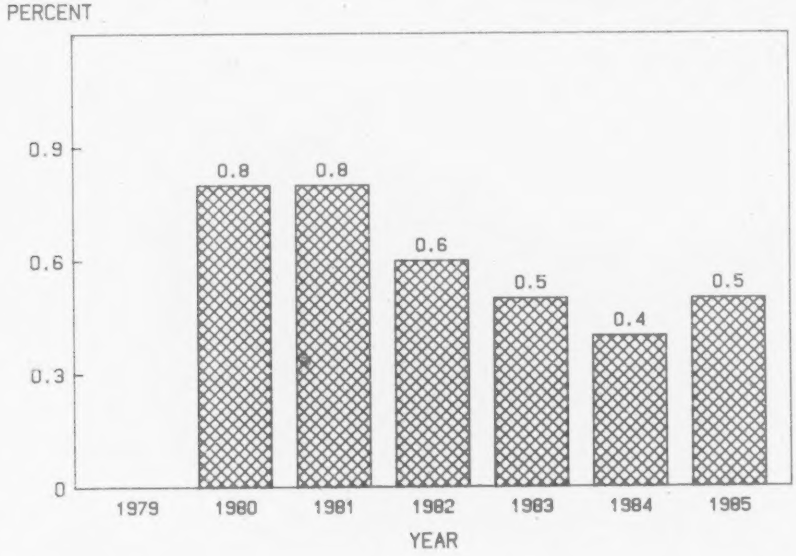
This section of the survey has dealt with automated encoding equipment (1979), high-speed reentry of prime-pass rejects under software system control (1980), miscellaneous statistics on pre-encoded items and a comparison of supervisory to clerical man-hours (1981), and the percent of on-us items (1982). No new information has been requested since 1982.

Reject Reentry

Several banks have the capability of high-speed reentry of prime-pass rejects under software system control. Although the rejected item should be merged properly into its appropriate place in the captured data base, some banks have experienced difficulties in the subsequent balancing operation as a result of using high-speed reject reentry.

In the 1985 survey, 60 of the reporting banks were using this type of system. Figure 44 shows that the average reject rate after high-speed reject reentry fell 25 percent, to 0.5 percent, in 1985 as compared to 0.4 percent in 1984. The analysis shows that 68 percent of the reporting banks had rates below 0.5 percent in 1985 as compared to 65 percent of the banks in 1984. The average number of rejects reentered from the prime pass decreased to 37,359 items in 1985 from 38,183 in 1984.

Figure 44
Reject Rate (After High-Speed Reject Reentry)



Reject reentry productivity increased to 313 items per man-hour in 1985 (Figure 45). In 1984, reject reentry productivity was 217 items per man-hour. The analysis indicates that 42 percent of the banks had productivity rates below 300 items per man-hour (Figure 46), while 16 percent of the banks were able to achieve productivity of more than 600 items per man-hour.

Figure 45
Reject Reentry Productivity

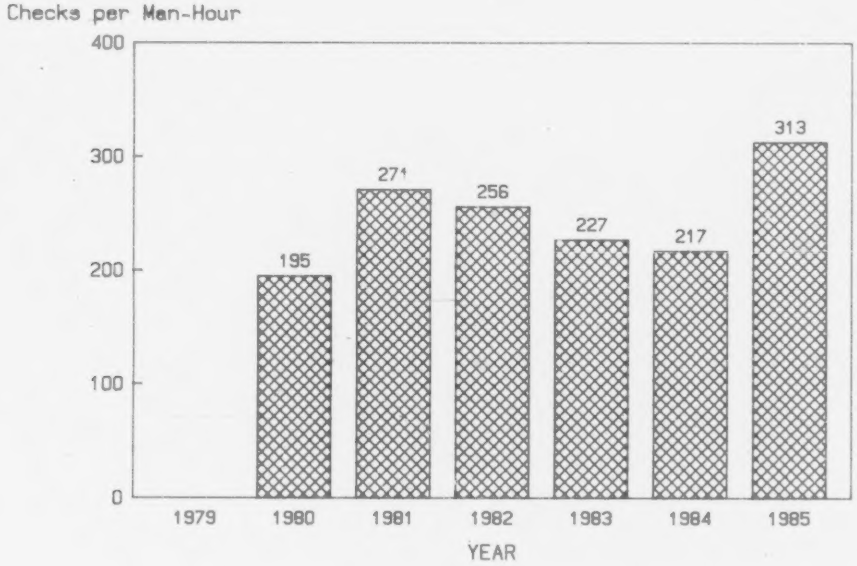
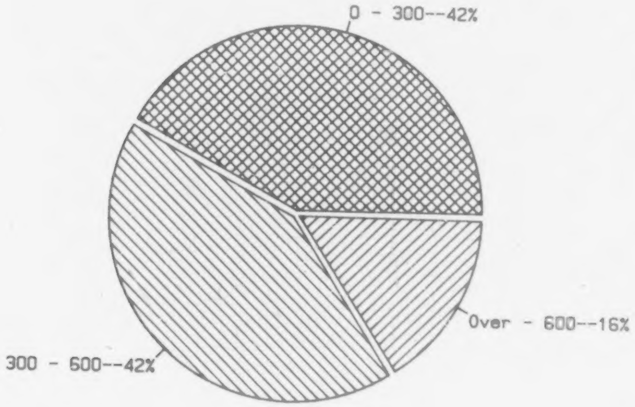


Figure 46
Distribution of Reject Reentry Productivity



Banks that do not use automatic reject reentry usually employ some manual method of modifying their captured data bases. The survey indicates that in 1985 there was a shift in the percentage of banks using manual rather than automated means of handling rejects. The survey shows that in 1985, twenty percent of the banks indicated that they did not use automated systems, as compared to 16 percent in 1984.

With regard to the volume of rejects processed, the survey indicates a slight increase in the percentage of rejects handled by automated systems (Figure 47), to 88 percent, as compared to 85 percent in 1984. Conversely, rejects handled by manual methods decreased to 13 percent in 1985 (Figure 48), down from 15 percent in 1984. In addition, the survey indicates that 59 percent of the banks process more than 90 percent of their rejects through automated reject reentry systems (Figure 49). Additional information is provided in Tables 49 through 57 of Appendix B.

Figure 47
Automated Reject Processing

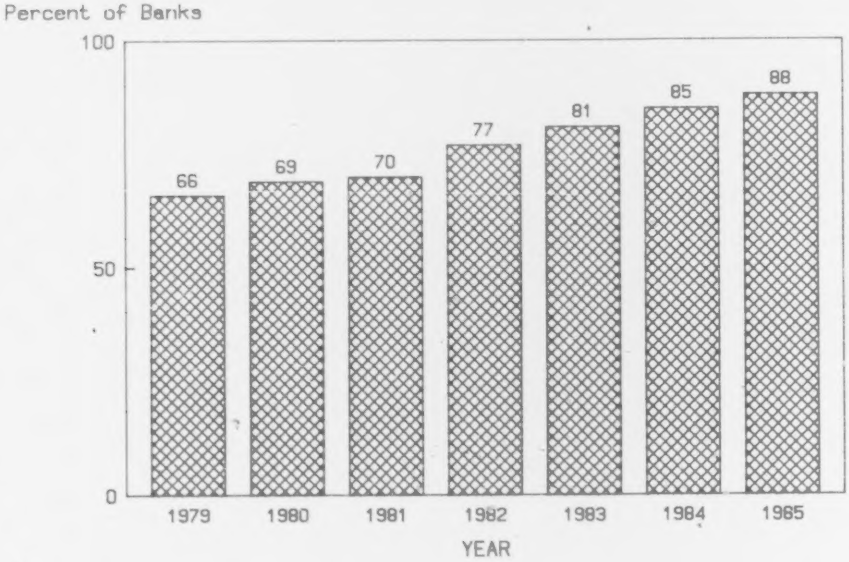


Figure 48
Manual Reject Procesing

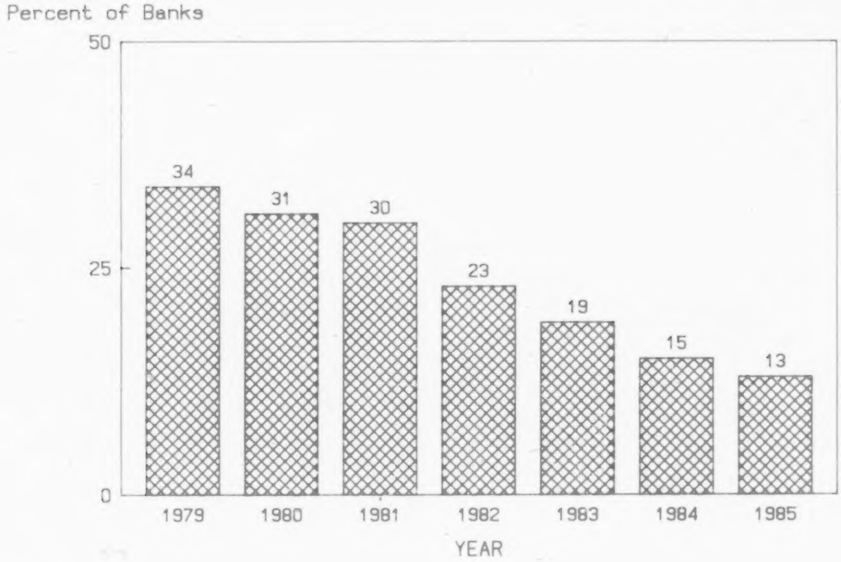


Figure 49
Distribution of Automated Reject Processing

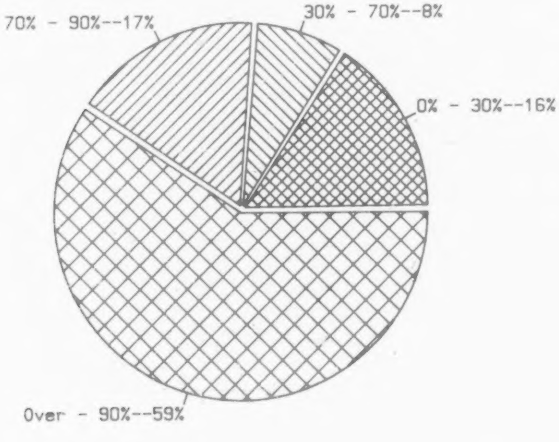
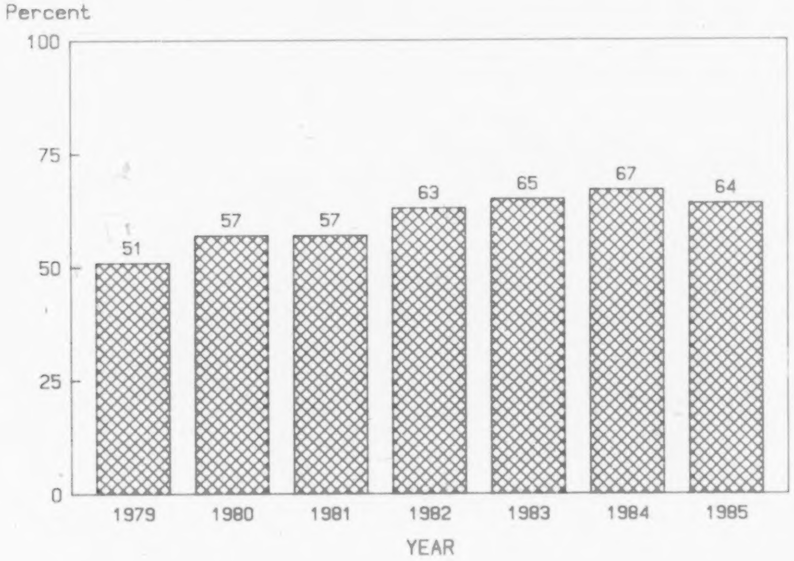


Figure 50 shows that the percent of incoming items that have been encoded decreased in 1985, to 64 percent, from 67 percent in 1984. A wide variety of factors influence the mix between encoded and unencoded items. Such things as new lock-box business, cash letter business, technological developments, and market experiments all contribute to the growth or decline of preencoded items. Among the activities occurring in some parts of the country are tests in which retail customers encode the dollar amount of both their cashed and deposited checks. If these market experiments become commonplace, the percent of incoming items encoded can be expected to increase rather dramatically. In addition, encoding by retail customers may have an adverse impact on the quality-control activities of banks. Additional information is provided in Table 58 of Appendix B.

Figure 50
Percent of Incoming Items Encoded



In 1985, the survey observed a slight increase in the percent of supervisory time to clerical man-hours, to 13 percent (Figure 51), up from 11 percent in 1984. However, further analysis revealed that within the various tasks there were shifts in the use of supervisory time as bank management reacted to quality issues and productivity concerns. Figure 52 shows that supervisory time decreased in the exception item processing area. Figure 53 shows that supervisory time decreased in the microfilming area, and Figure 54 shows an increase in supervisory time in the return item area.

The encoding function received 10 percent of the supervisory time in 1985 (Figure 55). Cash letter makeup increased to 15 percent in 1985 (Figure 56). Additional information is provided in Table 59 of Appendix B.

Figure 51
Supervisory Time to Clerical Man-hours (All Functions)

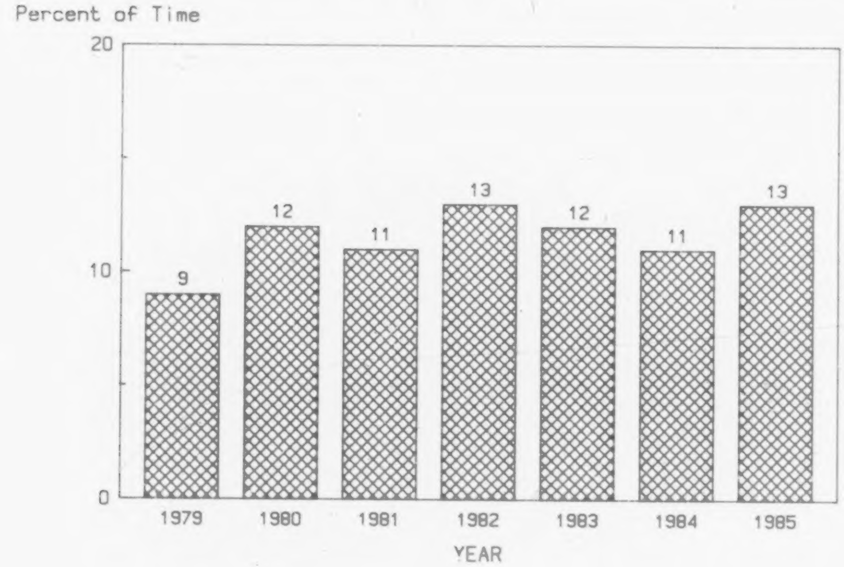


Figure 52
Supervisory Time to Clerical Man-hours
(Exception Item Processing)

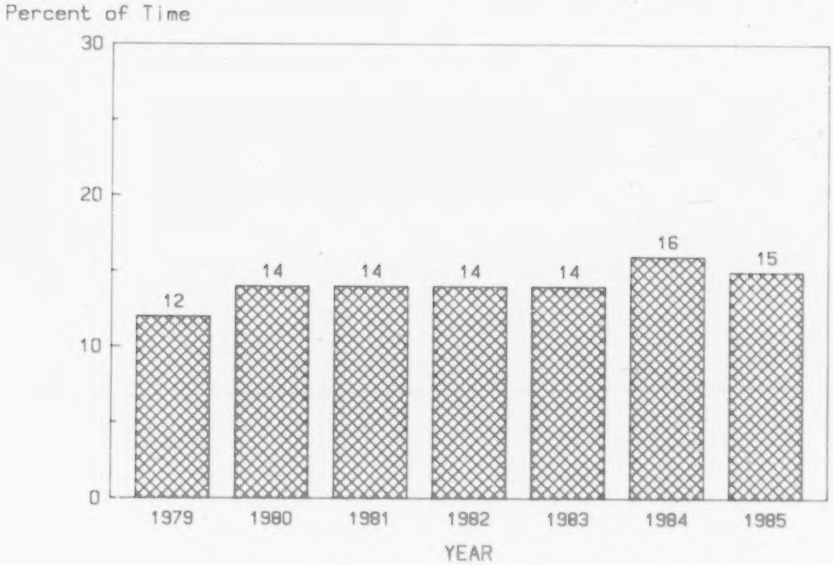


Figure 53
Supervisory Time to Clerical Man-hours (Microfilming)

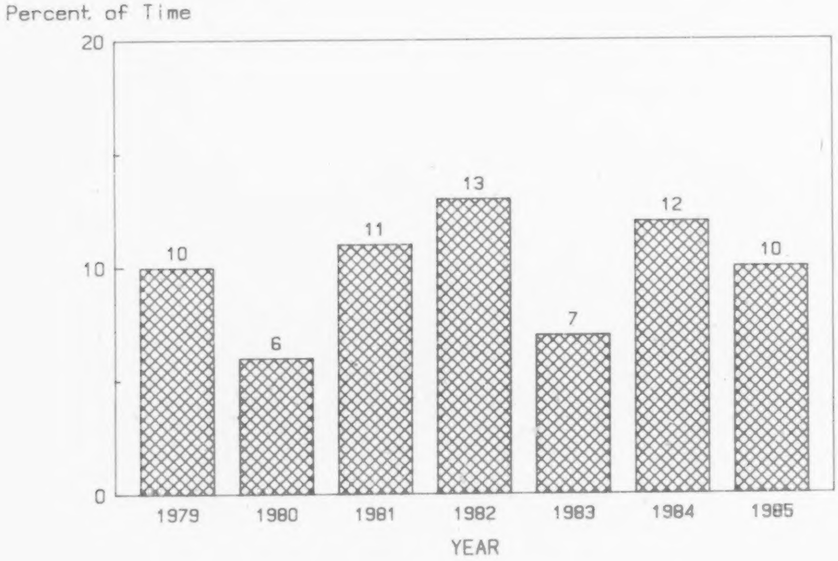
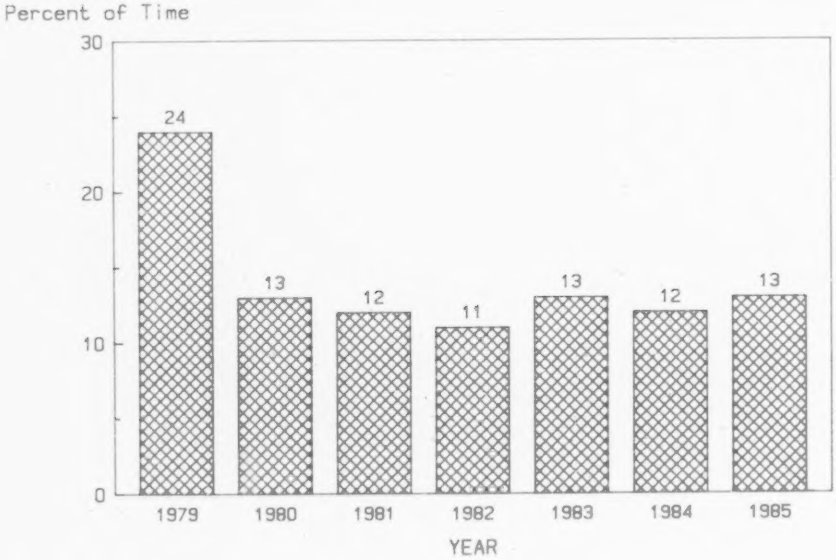


Figure 54
Supervisory Time to Clerical Time (Return Items)



The percent of on-us items as compared to total items processed declined slightly, to 41 percent in 1985, from 42 percent in 1984. Additional information is provided in Table 60 of Appendix B.

Figure 55
Supervisory Time to Clerical Time (Encoding)

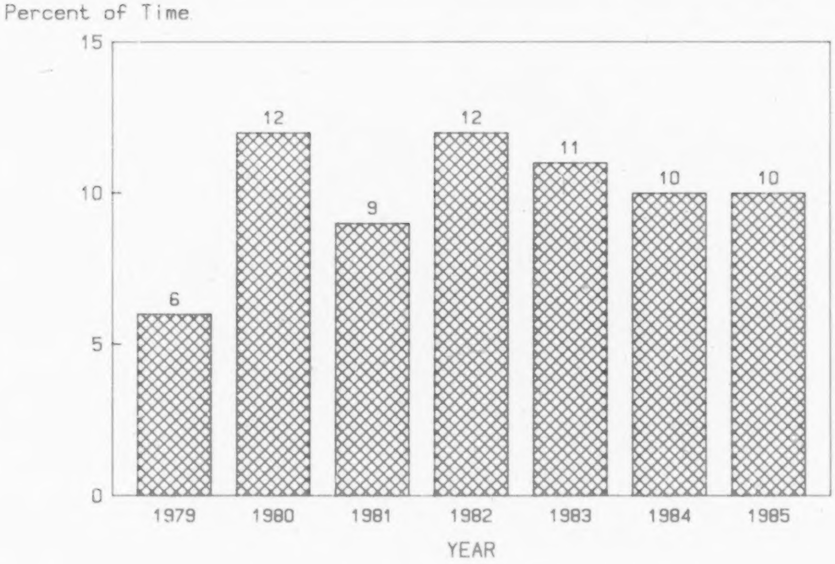
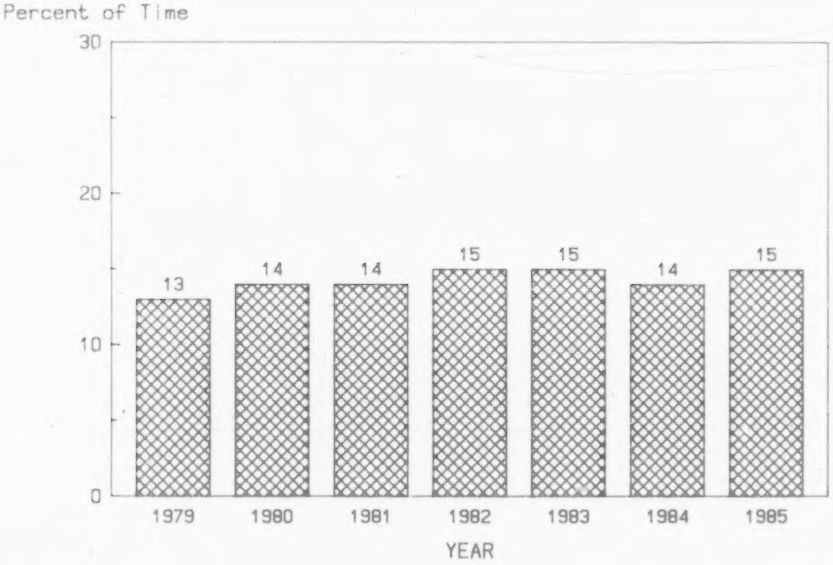


Figure 56
Supervisory Time to Clerical Man-Hours
(Cash Letter Makeup)



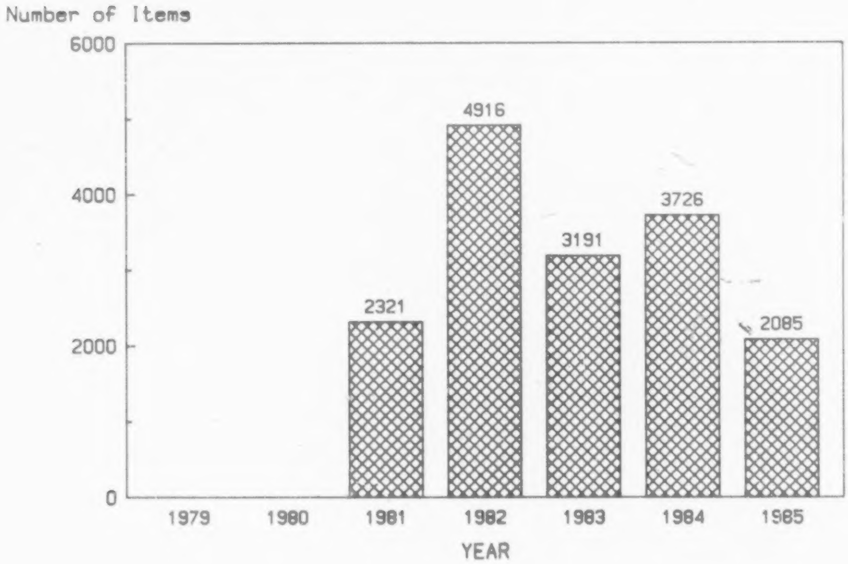
Our survey indicates payable-through drafts as a percent of total items processed decreased by 27 percent in 1985, to 2.7 percent, as compared to 3.7 percent in 1984. This may indicate an emerging trend in which corporate customers use more efficient, electronic means to move funds. Additional information may be found in Table 61 of Appendix B.

CHECK TRUNCATION AND ELECTRONIC CHECK PRESENTMENT

As banks continue to search for more profitable and productive means of providing noncredit services, check truncation activities can be expected to gain wider acceptance. Since the banking industry appears to be on the threshold of dramatic movement in this direction, the survey continues to measure the truncation statistics. Detailed definitions of the five types of truncation can be found in Appendix A.

In 1985, the responding banks indicated that they kept 2.1 million checks in safekeeping at the payor bank during the survey week (Figure 57) as compared to 3.7 million checks for the same period in 1984. The annual number of checks in safekeeping is actually higher than our survey data indicate for two primary reasons. First, the survey is a sample of one week, and, second, two of the leading banks in check safekeeping did not release check safekeeping figures in this year's survey.

Figure 57
Check Safekeeping at Payor Bank (In Thousands)

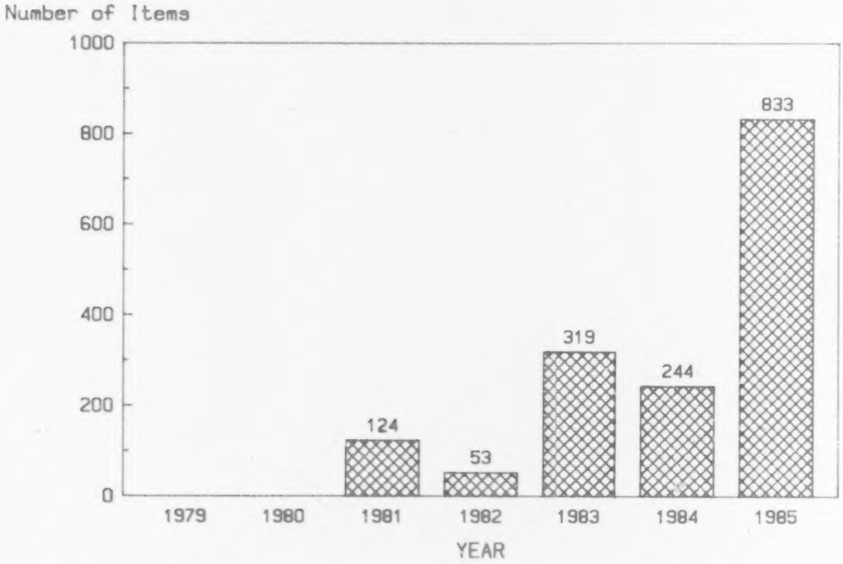


As the trend in this area is analyzed in conjunction with not only the statistical data but other industry information and announcements, it is believed a dramatic increase in check safekeeping will occur in 1986, because several major banks have announced their intention to implement check safekeeping bankwide to both retail and commercial customers. In addition, several banks that have been offering check safekeeping to retail customers have indicated that they are ready to offer this service to corporate accounts.

An analysis of electronic check presentment showed a significant increase in the number of items, from 244,000 items in 1984 to 833,000 items in 1985, for the survey week (Figure 58). More banks are realizing the importance of communicating the day's clearings total to transit banks for investment purposes. One of the most effective ways of doing this is electronic check presentment. As this method becomes more common and available, it will improve the efficiency of the check collection system.

Additional information is provided in Table 62 of Appendix B.

Figure 58
Electronic Check Presentment



APPENDIX A
1985 BANKER COMMENTS

The following comments were submitted by bankers who participated in the 1985 BAI survey. The purpose of this section is to provide bankers with an overview of the current environment in check processing operations. Therefore, references to specific organizations, vendors, or equipment were omitted. However, comments concerning working relationships with Federal Reserve Banks and other financial institutions that are pertinent to the overall functioning of the check collection system have been included to promote the cooperative efforts for improvement by all participants.

Personnel

"We continue to have a high degree of turnover in the proof area. More part-time operators are being used to replace full-time staff."

"Training is done at the department level. Handbooks containing job descriptions and position functions are prepared for each department, allowing employees to understand exactly what is expected. In addition, terminal training programs are being utilized. Employees receive handbooks, terminal training, and on-site classroom instruction. Once completed, measurable goals and production levels are set. These goals are then measured against those of one's peers."

"Turnover was up significantly in 1985."

"We have recently revised our encoding machine operator's training program, a self-administered, interactive program designed to standardize training and cut training time and costs. We also offer periodic keyboard training classes designed to increase productivity, and periodic reviews of software applications to keep personnel aware of changes and/or modifications."

"Personnel levels have stabilized due to less mergers."

"1984 turnover was 7 percent. 1985 turnover thus far is 8 percent."

"Turnover is 40 percent less for same period of 1985 compared to 1984. The higher unemployment rate contributes to more qualified applicants, which reduces training time."

"We experienced a merger this year. By moving all the operations staff into one building, we were able to decrease staff."

"Part-time staff contributes to high turnover."

"Productivity has risen in proof and encoding due to improved training efforts, which have also reduced turnover."

"Training and turnover continue to present problems. Because our local labor market confines us to primarily a high school labor market, we experience a 40 percent to 50 percent turnover annually in the proof department. We have been more successful recently in getting a stable base of employees by hiring housewives. This is probably due to the state of the economy."

"The continuing challenge in operations areas is to be able to attract, and adequately train, motivate, and retain topnotch personnel. We have increased the usage of part-time employees, which has positive as well as negative effects. Use of part-time employees produces lower personnel cost [illegible] corporation and offers the operating area greater flexibility in scheduling. On the other hand, turnover rates increase because of the necessity of continual training, hence a lower experience level. Finally, a part-time employee has less reason to exhibit loyalty to the company."

"We have had problems replacing personnel due to the low level of unemployment in this area and our requirements being mostly for the night shift."

"We have plans to develop a training program for the reconcilement/balancing group. An incentive pay program for proof encoders was implemented this year. It has been beneficial in weeding out the marginal and poor-performing employee."

"Since our 'Productivity Pay System' was implemented, we have had an increase in productivity and less turnover."

"Turnover has continued at low levels (11 percent). A continued emphasis has been placed on training and cross-training personnel, more thoughtful placement of people, and added experience."

"Mergers and acquisitions have necessitated an increase in personnel. Full-time paying, filing, and on-us check processing employees have been replaced by part-time employees."

"Turnover in the operations division for the first nine months of 1985 was 18.5 percent. For the same period in 1984, turnover was 13.4 percent."

"Due to the large quantity of work, our employees are not getting the same quality of training."

"Our Keyboard Training Program using audiovisual aids is in use and has helped productivity in the use of our proof machines."

"The adjustment department training has changed in that each desk handles a dollar range of exceptions. It is necessary for each clerk to know the overall department functions."

"The introduction of many new tasks for centralized bookkeeping has required that official and nonofficial staff receive training to support the new tasks and to understand better the importance of their responsibilities. The technical knowledge required of item processing staff has increased substantially."

"We have shortened our training period by increasing our trainees' daily working hours. There was a 40 percent decrease in turnover in 1985 versus 1984."

"An in-house campaign has been started to increase job awareness through an interdepartment Ambassador Program."

"Increased competition among couriers has lowered transportation costs."

"Additional efforts were spent during fiscal year 1985 towards cost analysis. As this expense becomes more significant, it will continue to warrant reviewing alternatives as to how we utilize courier services."

"Our bank has been looking at transporting cancelled checks by air instead of ground couriers. We hope to have at least 50 percent of our out-of-state banks' documents flown in to our processing site by the end of this year."

"We increased the transportation network to speed the flow of work and make available all processable items."

"The bank utilized more contract transportation versus in-house."

"The operations center was relocated and we are experiencing increased transportation time to the Federal Reserve Bank and the airport. These changes necessitate reevaluating our cut-off time frames to avoid missed deadlines."

"Couriers continue to get more competitive, opening up new check-clearing opportunities."

"We eliminated the bank's transportation network in favor of a commercial courier."

"The bank's own couriers transport the branch and (where possible) the transit items, primarily because local couriers cannot give us the flexibility we require at a reasonable cost. We also pick up our incoming work at our local RCPC to allow us to process in an earlier time frame."

"Heavy traffic conditions have caused delays between branches and the processing center."

"We have initiated more direct sends to RCPC's, HDGS endpoints, and have taken advantage of numerous package plans in order to improve availability and curtail item charges."

"Chartered air transportation has been improved, while continual problems exist on commercial airlines."

"The utilization of correspondents for check clearing has increased. Some direct-send work has been shifted back to the local Fed to take advantage of high dollar group sorts."

"The annual air and ground transportation expense in 1985 is projected to be 17 percent below the total annual 1984 expense. This transportation cost is only related to transportation expenses to collect transit checks when the bank pays its own transportation expense to go direct to endpoints."

"We continue to monitor all runs for expediency and pursue every alternative to reduce the impact of Fed pricing."

"Better communication exists between bank personnel and the courier staff. We are committing to more advanced and expensive transportation, such as helicopters and jets."

"High dollar group sorts have required new air transportation."

"Alteration of the courier routes in 1985 has improved work arrival times to the operations center."

"The transportation availability has dramatically increased in 1985. We are now able to make later deadlines at our correspondent banks as well as lower our overall transportation costs."

"We presently use a helicopter for transporting our work to the Fed during peak times and transporting our branch work to the Operations Center. This has expanded our processing window and improved our release time."

"Utilization of a mainframe-driven transportation model enabled us to reduce expenses and improve workflow availability to proof operations. Less than 25 percent of our work is now received after 5:00 p.m., an improvement of 20 percent."

Rejects

"Rejects continue to be a problem. We just went into bulk filing and found we spend about three man-hours each day interfiling rejects into our statement-sorted items before running them through our statement stuffer."

"Our reject rate usually goes up in the summer months, and we are working on a project to bring this rate down."

"We installed additional on-line reject reentry equipment."

"Our reject rate has remained constant over the past year, with an average of 1.7 percent for inclearings and 1.45 percent for transit work."

"Our reject costs (per item and deferred availability) still do not justify reject repair."

"The installation of new proof machines has improved the reject rate by .4 percent."

"The bank has addressed some vendors who have dropped their paper standards and requested our customers to improve paper quality."

"Improved systems and software have decreased reject rates."

"We upgraded our IPS configuration, and the reject rate was lowered as a result."

"The reject rates we are experiencing are higher due to the age of encoding equipment and the poor encoding work of our customers."

"Full-field encoding should be done on a national scale to reduce the cost of processing in each check-clearing shop."

"Standardized check sizes and good quality control on MICR print would reduce reject rates for the entire industry."

"We continue to use a manual, on-line, reject reentry process with subsequent repair of items using check-saver envelopes. Our reject rates are coming down due to an all-encompassing quality-control effort,"

"Rejects due to trancode have increased because of the increased use of five-digit trancodes on credits also containing T/R numbers."

"We continue to use a combination of automated (CRT) and manual processing (document carriers and reject stripping machine) to process and clear our transit rejects."

"The trend for large commercial customers to do their own encoding has produced an increase in the reject rates and research associated with these accounts."

"Rejects are higher this year because of an account number conversion with our affiliates and the increase in volume."

"Reject rates on our incoming cash letters are rising primarily because other banks are using reject repair devices that do not repair the account number field."

"We are now charging our pre-encoding customers $.10 per rejected item and have noticed a slight decrease in rejects."

"Greater awareness has been established throughout the item processing department, improving overall quality control."

Outstanding Exception Items

"Counter checks are causing problems with bulk file processing."

"The biggest delay is in getting reimbursed for photocopies and originals that have been paid."

"A very labor-intensive process!"

"The number of outstanding exceptions has dropped significantly due to a more experienced staff, new management, and an improved relationship between processing centers."

"Exceptions have increased due to an acquisition and to major turnover in several regional proof departments."

"We automated our adjustments system to reduce turnaround time in resolving outstanding exceptions. This package will automate record keeping and improve research and adjustment service to customers."

"Such items were reduced due to staffing education and tighter control over the processing area."

"Adjustments handled through money center banks continue to be a problem."

"Volume of outstanding exception items has grown at a rate equivalent to our growth in item processing."

"The volume increased substantially from 1984 as a result of centralizing the research function in the adjustment department."

"Mergers and acquisitions have increased the volumes."

"It appears many banks are having problems with Fed exceptions."

"The cash letter difference account research has increased due to an increase of free items."

"Exception items in our adjustments department are kept under better control due to the new method of range responsibility."

Returns and Adjustments

"We experienced an increase due to a merger."

"The equipment is constantly monitored to achieve the highest productivity and to reduce adjustments."

"Returns are now processed in a semi-automated environment, using high-speed sorting and cash letter generation. We also have on-line posting of chargebacks. Our biggest problem is researching items to determine the source of deposit. The problem should be resolved with the installation of an 'all items' file and retrieval system."

"An exceptional number of checks are received that have been stripped and contain the wrong bank number. More work is required to process a return item improperly endorsed or misrouted."

"More changes are anticipated in Reg J during 1986."

"Reg J changes have added new importance to the need for standardized endorsements."

"We installed a telephone recording device for large-item notification documentation."

"We are in the process of automating return item functions and adjustments to general ledger suspense."

"Photocopies processed as cash items continue to be a major area of concern for us. We are a major processor of high-volume medical accounts and receive a large number of this type of adjustment. A high portion of those photocopies are already paid, and the difference is held by a third-party bank."

"Staff has been increased to maintain control and enhance efficiency."

"Phone inquiries have nearly doubled due to mergers and acquisitions. ACH returns to the Fed have been automated. In the future we intend to send adjustment information to other banks via wire."

Automated Reject Processing

"Automated reject repair machines have enabled us to reduce clearing time substantially on rejected items."

"Credit from the Fed should be deferred for items sent out of the encoding bank where the full field repair was not done. The account number field should be mandatory."

"Transit rejects are now processed through high-speed reject reentry."

"We are currently using a strippette machine, but are considering an automated system."

"Additional on-line reject reentry equipment was installed."

"In 1986 we will be upgrading our reject reentry equipment. We expect an increase in throughput along with decreased system downtime."

"We continually monitor this processing to ensure that our performance standards are being met. Regular preventive maintenance is a must, as well as timely resolution of any system failures."

Equipment and Systems Problems

"All new proof machines were installed and equipment problems were reduced."

"Until we upgrade our system, we are at maximum capacity."

"We experienced problems with SPO's by the reader/sorters because of high downtime. The cable has been changed on the SPO's, and the problem was corrected."

"We dropped our service contract and went with a third-party vendor, resulting in improved service."

"The merger changed processors for us. All the existing equipment had to be enhanced in every application to equate closely to the same types of service we were accustomed to.

"The division is in the process of identifying alternatives to the IBM 803 machine because IBM will be phasing out all service for these machines in 1986."

Security

"We installed a card access system for entering the building after hours."

"All bags are securely locked by branch personnel, couriers do not have a key, and the bags are unlocked by proof personnel. The work is accounted for by the receipt and check-off systems personnel."

"Current security needs for the item processing computer systems are being reviewed."

"A combination-lock entrance door has been installed."

"Our security system includes a disaster program that will allow us to process our work outside the bank should existing resources fail."

"Security of PC equipment and files has increased with usage."

Regulatory Impacts

"Reg J has increased our equipment expenses due to wire and phone notifications."

"Multi-parish banking has reduced our incoming cash letter volume due to bank mergers."

"Reg J has increased recordkeeping, but works well with the Fed on-line terminal."

"Operationally, we must be able to support the development of new instruments to attract and retain customers after the removal of interest rate ceilings."

"We anticipate the Fed lowering the dollar level of return item notification to $100 in 1987. This will increase the time allocation and will enhance the use of automated packages currently on the market."

"Reg J changes warrant a nine-digit FR/ABA number in the endorsement, which is an additional expense to banks depositing at the Fed."

"Reg J changes were welcome and long overdue. There are some inconsistencies, however, between local clearinghouse rules and items bypassing the Fed."

"Compliance with Reg J appears to be a complex issue due to the general language of the legislation. Financial institutions have apparently adopted a variety of measures, thus prohibiting an industry consensus on what constitutes compliance."

"HDGS opportunities have given us some financial benefit. However, each time things like this, as well as new prices, new ACH system pricing, and so forth, come about, we must spend a considerable amount of time reviewing them to make sure what benefits we can achieve."

"Inconsistent Fed policies require significant management time to analyze and implement necessary procedures."

"Greater use of direct sends to the Fed, upstream correspondents, and our own correspondents have decreased our costs."

"Plan to begin this the first of next year."

"This is still not commonplace in the commercial banking environment."

"All truncated items are now 'killed' daily, rather than at the cycle sort level. The use of the truncation indicator digit has been discontinued. All items are killed by accessing a file."

"Truncation continues to grow as we use price incentives, but our research costs have risen proportionately."

"We now offer lower-cost truncated checking accounts. The acceptance level is unknown due to its recent implementation."

"A November 1984 campaign to convert accounts resulted in an increase of 57 percent in nonreturn volume."

"Our bank has safekeeping for personal accounts only, and it is not possible to track the dollar amount of these items on a daily basis."

"Approximately 51 percent of our consumer checking accounts are on safekeeping, which results in a substantial reduction in postal charges. Timeliness of our statement rendering processes has also improved greatly."

"The bank began check truncation in July with employee accounts and student checking accounts. This service will be offered to all accounts beginning in late fall."

"We currently are planning to implement truncation on employee and money market accounts."

"We discontinued all forms of truncation in 1984."

"The bank uses electronic check presentment for processing items for S&L's."

"We are experiencing an increase in the number of accounts that truncated."

"We have had our truncation for two years. The adjustments department has had an increase in photo requests, causing additions to personnel and machines."

Microcomputer Applications

"The bank has a strong commitment to microcomputers."

"Senior management is not committed to micros. We continue to be frustrated by all the software available for adjustments and float decision making and reporting when we lack the training , vendor support, and ability to de-bug existing programs."

"Applications to measure proof operator productivity and a transit analysis program are used."

"Clearinghouse exchange and settlement as well as capacity tracking and modeling are two of the applications that have been installed."

"A clearing optimization model is used on the IBM-AT, and we maintain volume, productivity, and statistical reports on the PC."

"We continue to expand our use of microcomputers in the check processing environment."

"Very good opportunities exist for enhanced control and increased efficiency. We are in the process of creating a network of micro systems and work stations. Major applications have been and will be programmed for the system."

"All areas are converting a variety of functions to personal computers (i.e., management reports, job standards, availability sheets, point sheets, and daily figures from check processing)."

"The PC continues to be a great asset for float analysis and operations reporting."

Miscellaneous

"We implemented bulk filing in 1985 on commercial accounts with volume of 200 or less items per month. Planning is being done to automate return items in 1986. Internal audit procedures are being scrutinized more closely."

APPENDIX B
1985 SURVEY TABLES 1 THROUGH 62

Table 1

Survey Respondents by Geographic Area

Area	1980	1981	1982	1983	1984	1985
Boston	12	10	11	6	8	12
New York	17	14	16	19	16	11
Philadelphia	24	18	16	15	12	13
Pittsburgh	5	5	5	4	2	3
Washington, D.C.	9	9	8	9	8	7
Atlanta	21	18	25	16	18	23
Chicago	11	12	12	11	10	14
Cleveland	11	13	11	6	9	6
Detroit	9	9	8	4	4	7
Minneapolis/St. Paul	0	5	4	5	0	2
St. Louis	10	11	12	9	8	9
Dallas	6	7	7	4	5	7
Houston	8	5	9	5	3	8
Los Angeles	10	7	10	11	8	6
San Francisco	11	9	11	10	9	7
Denver	5	5	5	4	4	6
Total banks	170	157	170	138	124	141

*The Outlook for the Nation's Check Payment System: 1970-1980, Arthur D. Little, Inc., Cambridge, Massachusetts, December, 1970.

Table 2

Percent of Rejects on Reader/Sorter Equipment by Area

Area	1980	1981	1982	1983	1984	1985
Boston	2.1%	2.0%	1.6%	1.4%	1.4%	1.8%
New York	2.2	2.7	1.8	2.1	2.2	1.8
Philadelphia	1.9	2.3	2.1	1.7	1.8	1.8
Pittsburgh	1.8	1.9	1.4	1.3	1.2	1.1
Washington, D.C.	2.1	1.4	1.5	1.3	1.5	1.3
Atlanta	1.9	1.6	1.7	1.5	1.4	1.6
Chicago	1.7	1.8	1.8	1.4	1.4	1.4
Cleveland	1.9	1.8	1.7	1.5	1.2	1.2
Detroit	1.8	1.5	1.5	1.6	1.2	1.5
Minneapolis/St. Paul	*	1.8	1.2	1.1	*	.8
St. Louis	2.0	1.7	1.4	1.2	1.3	1.4
Dallas	1.8	2.2	1.7	1.5	1.3	1.4
Houston	2.1	2.7	1.8	1.1	1.1	1.4
Los Angeles	2.0	1.5	1.6	1.5	1.7	1.3
San Francisco	1.6	1.7	1.1	1.1	1.2	1.2
Denver	1.7	1.8	1.2	1.2	1.4	1.2
Total banks	158	153	163	133	121	138
Average	1.9%	1.7%	1.5%	1.5%	1.5%	1.4%

*No respondents.

$$\frac{Q30}{Q7} \times 100$$

Table 3

Distribution of the Reject Rate

Reject Rate	1980	1981	1982	1983	1984	1985
0% - 1.0%	10	17	18	26	30	25
1.0% - 1.5%	38	40	61	61	45	62
1.5% - 2.0%	40	48	47	32	29	39
2.0% - 2.5%	38	21	26	8	10	8
2.5% - 3.0%	21	11	5	4	3	1
3.0% - 3.5%	11	9	2	1	1	0
3.5% - 4.0%	0	3	2	1	1	2
Over 4.0%	0	4	2	0	1	1
Total banks	158	153	163	133	121	138
Average	1.9%	1.7%	1.5%	1.5%	1.5%	1.4%
Median	1.8%	1.7%	1.5%	1.4%	1.4%	1.4%

$$\frac{Q30}{Q7} \times 100$$

Table 4

Percent of First-Pass Rejects by Type and by Area

Transit Number

Area	1980	1981	1982	1983	1984	1985
Boston	21%	14%	16%	13%	14%	14%
New York	19	14	16	11	12	12
Philadelphia	14	11	14	11	13	14
Pittsburgh	17	11	9	13	17	11
Washington, D.C.	27	13	20	19	15	14
Atlanta	16	19	19	20	16	15
Chicago	21	23	19	16	13	14
Cleveland	18	18	13	21	17	15
Detroit	18	18	9	11	12	14
Minneapolis/St. Paul	*	17	14	10	*	7
St. Louis	18	16	19	17	15	14
Dallas	16	27	23	18	4	28
Houston	27	12	16	19	14	16
Los Angeles	16	26	16	20	9	11
San Francisco	13	12	9	17	16	17
Denver	22	21	14	13	17	21
Total banks	127	116	139	105	91	107
Average	18.6%	15.1%	15.3%	15.5%	14.2%	14.5%
Median	17.1%	15.2%	14.3%	15.2%	13.9%	14.6%

*No respondents.

$$\frac{Q24}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Account Number

Area	1980	1981	1982	1983	1984	1985
Boston	20%	20%	15%	26%	23%	18%
New York	15	15	16	29	30	24
Philadelphia	22	16	17	14	15	16
Pittsburgh	16	20	20	33	22	20
Washington, D.C.	15	21	19	19	19	27
Atlanta	17	20	15	20	19	16
Chicago	14	13	14	13	13	11
Cleveland	21	18	22	14	17	20
Detroit	17	20	19	13	12	9
Minneapolis/St. Paul	*	13	11	9	*	6
St. Louis	10	10	12	12	12	12
Dallas	13	14	18	19	24	15
Houston	12	11	13	9	3	18
Los Angeles	23	30	26	20	10	13
San Francisco	15	19	8	13	12	16
Denver	16	26	18	25	23	19
Average	15.7%	16.3%	16.0%	19.5%	18.1%	16.5%
Median	17.3%	17.8%	16.4%	19.1%	18.4%	18.5%

*No respondents.

$$\frac{Q25}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Dollar Amount

Area	1980	1981	1982	1983	1984	1985
Boston	45%	40%	45%	39%	39%	41%
New York	39	30	33	38	31	31
Philadelphia	35	34	28	37	44	39
Pittsburgh	37	28	23	24	33	33
Washington, D.C.	34	23	28	26	25	25
Atlanta	40	33	32	30	25	24
Chicago	40	41	39	44	48	51
Cleveland	40	39	43	37	32	35
Detroit	45	35	32	38	47	44
Minneapolis/St. Paul	*	31	46	39	*	74
St. Louis	47	41	37	43	42	45
Dallas	35	49	39	47	51	40
Houston	45	41	30	38	31	31
Los Angeles	43	28	36	32	21	34
San Francisco	39	40	31	35	33	34
Denver	45	26	36	36	31	37
Average	41.5%	35.1%	34.0%	35.7%	33.1%	35.3%
Median	39.5%	33.3%	34.6%	34.4%	32.4%	33.2%

*No respondents.

$$\frac{Q26}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Serial Number

Area	1981	1982	1983	1984	1985
Boston	4%	4%	8%	7%	8%
New York	3	3	5	8	3
Philadelphia	5	5	5	8	10
Pittsburgh	5	3	2	5	3
Washington, D.C.	3	3	5	6	5
Atlanta	6	4	4	7	3
Chicago	4	5	6	6	6
Cleveland	5	5	8	5	9
Detroit	3	4	9	5	5
Minneapolis/St. Paul	2	3	3	*	0
St. Louis	4	3	6	7	7
Dallas	0	2	3	9	7
Houston	8	4	13	8	2
Los Angeles	4	6	5	4	3
San Francisco	3	2	5	4	5
Denver	5	6	5	5	5
Average	4.8%	5.0%	5.3%	6.2%	5.4%
Median	3.1%	3.0%	4.0%	4.6%	3.9%

*No respondents.

$$\frac{Q27}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Trancode Misread

Area	1981	1982	1983	1984	1985
Boston	4%	4%	5%	5%	5%
New York	7	5	4	2	5
Philadelphia	12	9	8	9	11
Pittsburgh	7	11	6	7	5
Washington, D.C.	12	8	10	12	13
Atlanta	6	7	8	8	7
Chicago	3	6	4	3	4
Cleveland	9	9	4	4	4
Detroit	3	3	2	1	5
Minneapolis/St. Paul	10	9	5	*	1
St. Louis	10	6	7	7	5
Dallas	3	6	5	13	3
Houston	9	3	15	6	6
Los Angeles	6	8	10	2	5
San Francisco	7	4	8	6	6
Denver	9	15	9	11	9
Average	6.6%	6.8%	6.6%	5.5%	6.3%
Median	5.2%	5.0%	5.1%	4.7%	4.4%

*No respondents.

$$\frac{Q28}{Q30} \times 100$$

Table 4 (Continued)

Percent of First-Pass Rejects by Type and by Area

Other Reasons

Area	1980	1981	1982	1983	1984	1985
Boston	14%	17%	16%	11%	12%	15%
New York	27	31	26	13	17	26
Philadelphia	29	22	27	25	12	11
Pittsburgh	29	29	34	23	15	29
Washington, D.C.	24	23	21	21	23	15
Atlanta	27	16	23	18	31	35
Chicago	26	16	17	18	18	14
Cleveland	20	11	8	17	25	18
Detroit	21	20	33	27	23	23
Minneapolis/St. Paul	*	27	17	34	*	12
St. Louis	25	18	22	15	17	18
Dallas	36	7	13	9	0	8
Houston	15	19	34	8	38	28
Los Angeles	18	6	8	14	55	34
San Francisco	33	18	46	21	29	22
Denver	17	13	11	12	13	8
Average	24.2%	22.2%	23.0%	17.3%	23.5%	21.9%
Median	21.5%	13.0%	15.3%	14.9%	16.5%	15.3%

*No respondents.

$$\frac{Q29}{Q30} \times 100$$

Table 5

Transit Returns by Area
(Rate per 100,000 of Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	787.2	843.2	682.6	695.3	534.0	673.8
New York	904.3	908.6	946.2	803.1	726.4	771.2
Philadelphia	800.4	667.1	653.5	630.9	529.8	588.1
Pittsburgh	831.8	725.6	673.8	646.5	707.7	636.1
Washington, D.C.	1,138.4	865.7	930.5	715.4	644.5	894.0
Atlanta	1,046.6	1,028.2	1,117.5	987.6	646.7	1053.5
Chicago	929.4	732.2	771.7	564.9	591.7	786.4
Cleveland	1,106.5	984.3	832.0	586.9	701.1	806.1
Detroit	966.9	1,067.5	819.3	844.0	904.1	437.1
Minneapolis/St. Paul	*	1,169.7	711.5	706.7	*	865.8
St. Louis	1,309.0	1,014.8	757.8	822.4	686.8	934.7
Dallas	867.7	1,293.5	1,131.7	662.6	659.1	878.0
Houston	1,474.5	1,651.6	1,287.9	1,013.7	1015.3	697.8
Los Angeles	1,134.9	1,514.1	1,184.2	1,555.5	891.9	946.8
San Francisco	1,088.6	1,095.1	1,353.7	712.8	861.5	763.0
Denver	1,085.4	1,526.8	1,332.3	1,057.4	1018.0	1297.4
Total banks	165	149	164	134	123	141
Average	1,004.1	910.1	936.1	811.3	701.5	818.9

*No respondents.

$$\frac{Q18}{Q10} \times 100,000$$

Table 6

Distribution of the Transit Return Rate

Transit Return Rate	1980	1981	1982	1983	1984	1985
0 - 200	1	1	3	5	2	4
200 - 400	6	4	9	5	9	5
400 - 600	7	18	13	28	33	18
600 - 800	44	45	48	31	38	34
800 - 1,000	37	37	36	34	27	38
1,000 - 1,200	28	10	24	12	7	25
1,200 - 1,400	19	11	14	10	3	8
1,400 - 1,600	8	7	4	1	1	3
1,600 - 1,800	7	5	1	3	0	1
1,800 - 2,000	4	3	4	2	1	1
Over 2,000	4	8	8	3	2	4
Total banks	165	149	164	134	123	141
Average	1,004.1	910.1	936.1	811.3	701.5	818.9
Median	931.1	824.1	862.6	786.5	708.2	843.1

$$\frac{Q18}{Q10} \times 100{,}000$$

Table 7

Transit Return Dollar Value by Rate of Transit Returns

Transit Returns per 100,00 Items Sent *	Number of Banks					
	1980	1981	1982	1983	1984	1985
0 - 500	8	12	16	21	23	13
500 - 1,000	87	93	93	79	86	85
1,000 - 1,500	50	25	39	23	10	34
1,500 - 2,000	16	11	8	4	2	4
Over 2,000	4	8	8	3	2	4
	----	----	----	----	----	----
Total banks	165	149	164	130	123	140

* $\frac{Q18}{Q10} \times 100,000$

Transit Returns per 100,000 Items Sent*	Average Dollar Value+					
	1980	1981	1982	1983	1984	1985
0 - 500	$ 714	$ 737	$1,027	$ 992	$ 818	$ 1,089
500 - 1,000	705	614	671	669	904	878
1,000 - 1,500	583	717	501	735	554	835
1,500 - 2,000	1,023	801	795	562	224	1032
Over 2,000	513	866	645	390	486	778
Average	$ 813	$ 705	$ 678	$ 664	$ 828	$ 869
Median	$ 496	$ 528	$ 511	$ 549	$ 553	$ 795

+ $\frac{Q19}{Q18}$ *See Table 21.

Table 8

Free and Lost Items Discovered by Area
(Rate per 100,000 Incoming Items)

Area	1980	1981	1982	1983	1984	1985
Boston	10.2	11.5	10.2	6.1	12.4	30.5
New York	14.6	20.3	14.2	14.2	16.4	19.4
Philadelphia	13.3	29.8	14.5	14.1	7.6	9.4
Pittsburgh	15.7	12.1	14.2	15.7	3.6	11.2
Washington, D.C.	26.5	23.1	19.0	8.8	10.3	15.9
Atlanta	26.2	16.1	10.3	13.9	9.7	13.3
Chicago	14.7	16.5	16.2	10.2	10.1	12.2
Cleveland	23.1	33.0	19.4	10.9	14.6	15.4
Detroit	31.9	22.4	44.6	36.2	28.5	22.6
Minneapolis/St. Paul	*	36.9	18.7	13.1	*	4.7
St. Louis	31.9	25.6	30.5	10.5	14.7	14.9
Dallas	16.9	15.2	17.6	13.5	10.4	10.5
Houston	24.3	24.5	10.4	9.5	6.8	10.0
Los Angeles	18.7	37.2	22.2	22.6	17.1	15.7
San Francisco	19.6	15.5	21.2	5.0	7.0	7.2
Denver	10.6	10.5	8.8	6.7	4.6	9.0
Total banks	165	143	166	131	120	136
Average	19.6	18.8	14.6	11.1	10.8	13.9
Median	13.4	15.0	11.0	8.8	10.3	10.1

*No respondents.

$$\frac{Q39 + Q41}{Q1 + Q2} \times 100,000$$

Table 9

Free Items Discovered by Area
(Rate per 100,000 Incoming Items)

Area	1980	1981	1982	1983	1984	1985
Boston	4.1	3.6	4.6	2.4	5.5	10.5
New York	7.2	7.5	5.0	5.6	5.8	5.4
Philadelphia	4.8	4.7	8.1	6.6	2.6	3.7
Pittsburgh	3.4	3.0	4.0	4.7	1.5	4.1
Washington, D.C.	8.2	13.0	9.2	3.5	4.8	12.2
Atlanta	10.9	6.9	3.8	5.1	3.8	5.7
Chicago	6.3	6.4	8.2	3.4	4.7	5.7
Cleveland	8.1	9.3	6.3	4.3	7.0	5.8
Detroit	6.1	6.0	6.9	14.8	7.9	6.2
Minneapolis/St. Paul	*	14.2	7.0	5.5	*	1.7
St. Louis	15.4	10.6	11.8	4.8	8.1	7.5
Dallas	6.6	8.8	7.1	5.9	5.4	5.4
Houston	8.8	15.1	3.9	4.4	2.3	4.1
Los Angeles	4.7	17.7	6.9	7.7	6.4	6.3
San Francisco	5.2	4.4	8.3	1.7	3.3	2.5
Denver	4.8	5.0	3.1	1.9	3.0	3.7
Total banks	165	143	166	131	120	136
Average	7.7	7.8	5.9	4.3	4.7	5.7
Median	4.6	4.3	3.4	2.9	3.2	3.4

*No respondents.

$$\frac{Q39}{Q1 + Q2} \times 100{,}000$$

Table 10

Lost Items Discovered by Area
(Rate per 100,000 Incoming Items)

Area	1980	1981	1982	1983	1984	1985
Boston	6.0	7.9	5.6	3.7	6.9	20.0
New York	7.4	12.8	9.2	8.5	10.6	14.1
Philadelphia	8.5	25.1	6.5	7.5	5.0	5.8
Pittsburgh	12.3	9.0	10.2	11.0	2.2	7.1
Washington, D.C.	18.3	10.1	9.7	5.3	5.5	3.6
Atlanta	15.3	9.2	6.5	8.8	5.9	7.6
Chicago	8.4	10.1	8.0	6.8	5.4	6.5
Cleveland	15.0	23.7	13.2	6.6	7.7	9.6
Detroit	25.7	16.4	37.8	21.4	20.6	16.4
Minneapolis/St. Paul	*	22.7	11.6	7.7	*	3.0
St. Louis	16.5	15.0	18.7	5.6	6.5	7.4
Dallas	10.3	6.4	10.5	7.6	5.0	5.2
Houston	15.5	9.4	6.4	5.0	4.5	5.9
Los Angeles	14.0	19.5	15.2	14.9	10.7	9.4
San Francisco	14.3	11.0	12.9	3.4	3.7	4.7
Denver	5.7	5.5	5.8	4.8	1.6	5.3
Total banks	165	143	166	131	120	136
Average	11.9	11.0	8.6	6.8	6.2	8.2
Median	8.1	9.0	7.0	5.5	5.6	5.8

*No respondents.

$$\frac{Q41}{Q1 + Q2} \times 100{,}000$$

Table 11

Distribution of the Free and Lost Items Rate

Rate	1980	1981	1982	1983	1984	1985
0 - 5	29	22	30	32	21	34
5 - 10	40	31	46	42	39	34
10 - 15	20	19	26	17	30	25
15 - 20	13	13	16	15	8	14
20 - 25	14	16	16	17	8	10
25 - 30	8	12	10	10	6	7
30 - 35	13	6	6	3	1	2
35 - 40	8	2	5	1	1	2
40 - 45	6	7	2	0	0	0
45 - 50	3	2	0	0	1	0
50 - 100	11	10	8	3	4	7
Over 100	0	3	1	1	1	1
Total banks	165	143	166	131	120	136
Average	19.6	18.8	14.6	11.1	10.8	13.9
Median	13.4	15.0	11.0	8.8	10.3	10.1

$$\frac{Q39 + Q41}{Q1 + Q2} \times 100,000$$

Table 12

Missent, Miscoded, and Listing Error Items Discovered by Area
(Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	24.0	29.3	15.0	10.0	13.1	12.0
New York	23.4	24.3	20.6	18.1	21.4	25.0
Philadelphia	29.6	16.2	17.6	15.4	14.3	13.6
Pittsburgh	15.4	13.4	11.2	10.7	4.1	15.9
Washington, D.C.	16.1	14.4	15.1	7.7	9.5	34.7
Atlanta	20.9	16.4	11.6	12.6	9.7	14.4
Chicago	10.0	15.8	14.4	13.0	9.3	13.4
Cleveland	17.8	21.5	16.4	13.4	11.5	9.9
Detroit	20.0	17.4	13.3	14.7	24.1	13.2
Minneapolis/St. Paul	*	33.9	18.9	17.0	*	16.4
St. Louis	14.1	13.8	14.2	11.8	11.2	10.1
Dallas	24.1	9.6	17.3	11.6	9.7	12.2
Houston	32.8	32.3	21.2	18.3	31.7	15.8
Los Angeles	31.0	25.8	13.3	10.8	13.4	9.5
San Francisco	22.6	23.3	17.6	7.5	5.9	9.3
Denver	12.9	5.7	9.5	28.3	6.1	11.0
Total banks	168	143	165	132	118	137
Average	18.6	16.6	13.9	12.7	11.6	14.3
Median	14.9	13.0	11.7	13.3	10.4	11.6

*No respondents.

$$\frac{Q33 + Q35 + Q37}{Q10} \times 100{,}000$$

Table 13

Missent Items Discovered by Area
(Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	15.2	20.2	8.0	4.9	6.5	2.7
New York	14.6	11.6	10.0	8.2	13.1	8.0
Philadelphia	19.4	3.7	4.3	4.8	5.4	4.8
Pittsburgh	2.4	4.0	2.0	0.7	.2	.5
Washington, D.C.	5.1	4.6	5.7	0.8	2.6	24.0
Atlanta	5.1	3.8	4.8	3.8	3.3	3.2
Chicago	2.8	8.0	5.8	2.0	1.1	3.2
Cleveland	4.4	10.4	5.4	4.5	3.1	1.0
Detroit	10.4	9.6	3.5	3.2	8.8	2.8
Minneapolis/St. Paul	*	7.2	8.5	2.3	*	4.6
St. Louis	3.1	2.7	2.1	3.4	5.5	3.7
Dallas	16.1	4.0	6.7	2.6	3.0	2.7
Houston	25.5	24.2	7.2	8.3	21.8	8.9
Los Angeles	20.1	15.6	6.6	4.0	5.1	3.2
San Francisco	12.2	13.7	10.8	1.7	1.3	2.9
Denver	4.8	2.2	4.6	22.9	2.2	5.3
Total banks	168	143	165	131	119	137
Average	7.9	6.5	5.0	4.2	4.6	4.7
Median	4.2	3.9	3.0	2.5	2.4	1.9

*No respondents.

$$\frac{Q33}{Q10} \times 100,000$$

Table 14

Miscoded Items Discovered by Area
(Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	6.1	6.9	3.7	3.1	4.3	6.1
New York	4.7	9.4	5.6	7.0	8.3	12.4
Philadelphia	5.8	8.3	7.8	7.2	5.1	6.3
Pittsburgh	7.7	7.3	6.6	7.4	2.3	10.3
Washington, D.C.	6.6	7.2	5.8	4.5	5.2	7.7
Atlanta	8.6	7.0	4.5	5.7	4.8	7.0
Chicago	4.6	4.3	5.8	8.3	4.7	5.3
Cleveland	6.6	5.8	5.8	5.9	5.4	5.0
Detroit	3.5	3.0	5.2	2.8	7.4	4.9
Minneapolis/St. Paul	*	8.2	7.2	9.5	*	10.0
St. Louis	4.0	3.6	4.9	3.0	4.2	3.8
Dallas	3.4	3.0	6.6	4.1	3.8	2.8
Houston	3.6	4.0	5.6	4.6	3.2	4.4
Los Angeles	7.4	6.9	4.2	4.5	6.9	5.7
San Francisco	6.7	6.6	4.2	3.9	3.2	5.7
Denver	4.2	3.1	3.5	4.7	2.9	3.9
Total banks	169	146	166	132	119	137
Average	6.0	6.4	5.3	5.5	5.0	6.2
Median	4.7	4.3	4.3	5.0	4.5	5.4

*No respondents.

$$\frac{Q035}{Q010} \times 100{,}000$$

Table 15

Listing Error Items Discovered by Area (Rate per 100,000 Transit Items Sent)

Area	1980	1981	1982	1983	1984	1985
Boston	2.7	2.2	3.3	2.1	2.3	3.2
New York	4.0	3.4	5.0	2.9	4.5	4.7
Philadelphia	4.4	4.2	5.4	3.4	3.7	2.6
Pittsburgh	5.2	2.2	2.7	2.6	1.7	5.1
Washington, D.C.	4.4	2.7	3.5	2.4	1.7	3.0
Atlanta	6.8	5.7	2.2	3.1	1.6	4.2
Chicago	2.6	3.5	2.5	2.6	3.5	4.9
Cleveland	6.8	5.4	5.3	2.9	2.9	3.9
Detroit	6.1	4.7	4.6	8.7	8.0	5.6
Minneapolis/St. Paul	*	18.5	3.2	5.2	*	1.8
St. Louis	7.0	7.5	7.3	5.4	1.5	2.6
Dallas	4.7	2.7	4.0	5.0	3.0	6.7
Houston	3.7	4.1	8.4	5.4	6.6	2.4
Los Angeles	3.6	3.1	2.5	2.2	1.4	.7
San Francisco	3.7	2.7	2.6	1.9	1.5	.8
Denver	4.0	0.4	1.5	0.7	1.0	1.7
Total banks	169	144	166	132	120	137
Average	4.3	3.8	3.6	3.1	2.6	3.4
Median	2.4	2.1	2.1	2.4	1.7	2.0

*No respondents.

$$\frac{Q37}{Q10} \times 100{,}000$$

Table 16

Distribution of Missent, Miscoded, and Listing Error Items Rate

Rate	1980	1981	1982	1983	1984	1985
0 - 5	20	16	30	19	17	15
5 - 10	38	32	36	30	40	39
10 - 15	26	31	34	34	32	37
15 - 20	23	18	19	21	10	17
20 - 25	17	13	20	9	5	10
25 - 30	15	8	11	5	4	5
30 - 35	6	7	5	6	2	3
35 - 40	4	5	3	1	0	4
40 - 45	4	3	0	1	0	1
45 - 50	0	3	3	1	2	0
50 - 100	13	6	4	2	5	4
100 - 200	1	1	0	2	1	0
Over 200	1	0	0	1	0	1
Total banks	168	143	165	132	118	136
Average	18.6	16.6	14.0	12.7	11.6	14.3
Median	14.9	13.0	11.7	13.3	10.4	11.6

$$\frac{Q33 + Q35 + Q37}{Q10} \times 100,000$$

Table 17

Exception and Return Items Discovered by Area
(Rate per 100,000 Transit Items Processed)

Area	1980	1981	1982	1983	1984	1985
Boston	884.5	883.1	709.1	713.6	563.4	720.9
New York	902.4	939.9	982.4	842.4	768.5	818.3
Philadelphia	843.6	718.6	685.8	657.3	551.4	603.3
Pittsburgh	863.1	753.1	702.1	675.3	716.3	665.1
Washington, D.C.	1,172.5	904.9	964.8	732.3	663.7	946.4
Atlanta	1,240.4	1,056.0	1,140.4	1,032.5	656.2	1081.7
Chicago	957.0	766.1	802.8	589.0	612.2	813.4
Cleveland	1,151.6	1,095.9	871.4	610.7	775.9	834.6
Detroit	895.5	1,185.8	855.9	900.7	966.8	859.6
Minneapolis/St. Paul	*	1,422.3	746.5	741.3	*	886.9
St. Louis	1,353.0	1,053.5	801.6	844.9	723.5	964.8
Dallas	910.3	1,288.2	1,168.2	691.3	682.0	903.1
Houston	1,533.7	1,250.8	1,320.4	1,050.2	1058.8	727.6
Los Angeles	1,194.3	1,767.3	1,221.0	1,608.1	979.7	968.9
San Francisco	1,276.3	1,158.6	1,397.2	729.2	880.4	754.4
Denver	1,111.8	1,542.6	1,352.5	1,092.4	1030.5	1316.5
Total banks	167	143	164	131	118	138
Average	1,062.2	959.4	967.3	837.3	731.2	866.0

*No respondents.

$$\frac{Q18 + Q43}{Q10} \times 100,000$$

Table 18

Distribution of the Exception and Return Items Rate

Rate	1980	1981	1982	1983	1984	1985
0 - 250	4	2	2	5	4	3
250 - 500	4	6	13	14	12	9
500 - 750	23	32	39	36	47	34
750 - 1,000	55	51	50	42	38	48
1,000 - 1,250	44	22	30	15	10	29
1,250 - 1,500	12	11	14	10	3	6
1,500 - 1,750	11	7	4	3	1	3
1,750 - 2,000	6	3	4	3	1	2
2,000 - 2,500	5	4	5	1	1	3
Over 2,500	3	5	3	2	1	1
Total banks	167	143	164	131	118	138
Average	1,062.2	959.4	967.3	837.3	731.2	866.0
Median	969.0	865.0	891.8	795.6	727.4	895.1

$$\frac{Q18 + Q43}{Q10} \times 100{,}000$$

Table 19

Percent of Exceptions, Returns, and Rejects to the Number of Items Processed

Area	1980	1981	1982	1983	1984	1985
Boston	2.6%	2.4%	2.0%	1.9%	1.9%	2.2%
New York	2.6	2.7	2.2	2.7	2.6	2.1
Philadelphia	2.3	2.8	2.5	2.1	2.2	1.8
Pittsburgh	1.8	1.8	1.4	1.6	1.4	1.4
Washington, D.C.	2.6	1.8	1.9	1.5	1.7	1.8
Atlanta	2.6	2.2	2.4	1.8	1.8	2.2
Chicago	2.5	2.3	2.4	1.9	1.9	2.1
Cleveland	2.7	2.2	2.0	1.8	1.7	1.6
Detroit	2.7	2.9	2.2	2.2	2.0	2.2
Minneapolis/St. Paul	*	3.8	1.8	1.7	*	1.5
St. Louis	2.8	2.4	2.0	1.9	1.8	2.1
Dallas	2.4	3.1	2.4	2.1	1.7	2.0
Houston	3.8	4.4	2.5	2.5	2.3	2.3
Los Angeles	2.1	2.2	2.3	2.2	2.3	1.8
San Francisco	2.2	2.5	1.6	1.3	1.6	1.5
Denver	2.4	2.3	2.3	1.9	1.9	2.0
Total banks	155	140	158	126	116	135
Average	2.4%	2.4%	2.0%	1.9%	1.9%	1.9%
Median	2.6%	2.5%	2.0%	1.9%	1.8%	1.9%

*No respondents.

$$\frac{Q30 + Q18 + Q43}{Q16} \times 100$$

Table 20

Distribution of Exceptions, Returns, and Reject Rate

Rate	1980	1981	1982	1983	1984	1985
0% - 1.5%	15	20	31	34	39	38
1.5% - 2.0%	24	34	45	42	37	39
2.0% - 2.5%	37	34	40	33	19	36
2.5% - 3.0%	42	28	24	6	14	14
3.0% - 3.5%	21	9	8	6	1	5
3.5% - 4.0%	8	5	5	5	3	1
4.0% - 4.5%	4	2	2	0	1	1
4.5% - 5.0%	1	1	0	0	1	0
Over 5.0%	3	7	3	0	1	1
Total banks	155	140	158	126	116	135
Average	2.4	2.4	2.0	1.9	1.9	1.9
Median	2.6	2.5	2.0	1.9	1.8	1.9

$$\frac{Q30 + Q18 + Q43}{Q16} \times 100$$

Table 21

Return and Exception Item Dollar Analysis by Area
Return Items

Area	Total $ (1) Discovered	Average (2) $ Value/ Item
Boston	$ 107,717,690	$ 796
New York	135,865,706	1,109
Philadelphia	97,671,810	740
Pittsburgh	69,513,322	1,526
Washington, D.C.	51,216,096	471
Atlanta	339,642,876	841
Chicago	172,187,298	785
Cleveland	121,566,877	1,661
Detroit	34,001,941	596
Minneapolis/St. Paul	2,699,752	216
St. Louis	98,990,611	518
Dallas	69,497,092	616
Houston	87,684,901	1,332
Los Angeles	74,791,154	821
San Francisco	298,430,345	1,277
Denver	90,461,211	713
1985 Average 140 Banks	$ 13,228	$ 869
1984 Average 123 Banks	10,602	828
1983 Average 130 Banks	10,774	664
1982 Average 165 Banks	10,925	675
1981 Average 149 Banks	10,104	705
1980 Average 165 Banks	11,258	813
1985 Median 138 Banks	$ 6,685	$ 626
1984 Median 123 Banks	4,179	553
1983 Median 130 Banks	4,544	549
1982 Median 165 Banks	4,670	510
1981 Median 149 Banks	4,441	528
1980 Median 165 Banks	4,363	496

(1) Q19 (2) Q19 / Q18

Table 21 (Continued)

Return and Exception Item Dollar Analysis by Area
Exception Items

Area	Discovered		Resolved	
	Total $ (3)	Average (4) $ Value/ Item	Total $ (5)	Average (6) $ Value/ Item
Boston	$ 39,173,715	$ 4,134	$ 48,033,058	$ 6,823
New York	236,914,162	31,652	88,213,456	16,519
Philadelphia	37,432,242	7,510	12,164,350	5,102
Pittsburgh	123,167,803	59,244	127,347,670	62,919
Washington, D.C.	92,217,372	14,488	23,979,446	5,310
Atlanta	330,553,488	34,777	190,082,288	22,410
Chicago	179,045,078	23,816	158,665,473	27,058
Cleveland	24,875,146	9,582	64,378,360	22,447
Detroit	167,917,738	61,962	155,198,705	67,127
Minneapolis/ St. Paul	143,536	449	148,530	451
St. Louis	234,915,206	38,222	229,588,968	47,613
Dallas	71,060,867	22,062	66,702,978	24,496
Houston	20,361,702	7,259	15,861,068	10,539
Los Angeles	30,487,811	14,327	22,316,440	14,472
San Francisco	423,715,793	74,901	50,074,944	10,893
Denver	17,914,703	9,621	17,598,834	11,480
1985 Average 137 Banks	$ 14,817	$ 27,117	$ 9,273	$ 21,948
1984 Average 123 Banks	13,937	29,631	9,999	27,044
1983 Average 130 Banks	11,504	22,599	12,825	30,544
1982 Average 165 Banks	14,278	25,901	14,875	34,048
1981 Average 149 Banks	22,933	36,792	25,397	50,149
1980 Average 165 Banks	12,020	19,262	11,423	23,885
1985 Median 137 Banks	$ 1,277	$ 3,835	$ 922	$ 3,971
1984 Median 123 Banks	1,233	4,024	931	4,884
1983 Median 130 Banks	1,107	3,382	870	3,512
1982 Median 165 Banks	1,533	4,166	836	3,756
1981 Median 149 Banks	1,371	3,496	1,175	3,913
1980 Median 165 Banks	1,117	3,350	818	3,448

(3) Q45 (4) Q45 / Q43 (5) Q46 (6) Q46 / Q44

Table 22

Age Distribution of Outstanding Exception Items

Dollars Outstanding

	1980		1981	
Months	143 Banks		124 Banks	
Outstanding	Dollars	Percent	Dollars	Percent
0 - 1	$541,802,776	61.8%	$454,148,269	61.2%
1 - 2	171,240,399	19.5	165,448,452	22.3
2 - 4	85,763,209	9.8	68,630,665	9.2
4 - 6	43,450,668	5.0	24,743,939	3.3
Over 6	34,629,413	3.9	29,250,333	3.9
Total	$876,886,465	100.0%	$742,221,658	100.0%

	1982		1983	
Months	144 Banks		121 Banks	
Outstanding	Dollars	Percent	Dollars	Percent
0 - 1	$463,171,271	75.9%	$459,756,255	81.0%
1 - 2	63,630,792	10.4	50,338,707	8.9
2 - 4	33,375,661	5.5	32,344,502	5.7
4 - 6	17,472,913	2.9	15,138,992	2.7
Over 6	32,577,625	5.3	9,713,310	1.7
Total	$610,228,262	100.0%	$567,291,766	100.0%

	1984		1985	
Months	111 Banks		126 Banks	
Outstanding	Dollars	Percent	Dollars	Percent
0 - 1	$572,151,404	78.4%	$404,359,543	67.1%
1 - 2	80,191,703	11.0	76,700,823	12.7
2 - 4	37,623,764	5.2	35,355,359	5.9
4 - 6	18,382,161	2.5	35,057,776	5.8
Over 6	21,178,359	2.9	51,297,979	8.5
Total	$729,527,391	100.0%	$602,771,480	100.0%

Q71 = Q72 + Q73 + Q74 + Q75 + Q76

Table 22 (Continued)

Age Distribution of Outstanding Exception Items

Items Outstanding

	1980 143 Banks		1981 124 Banks	
Months Outstanding	Items	Percent	Items	Percent
0 - 1	88,122	22.8%	80,200	29.1%
1 - 2	81,215	21.0	70,395	25.6
2 - 4	88,346	22.9	60,030	21.8
4 - 6	65,120	16.9	32,134	11.7
Over 6	63,320	16.4	32,575	11.8
	-------	-----	-------	-----
Total	386,123	100.0%	275,334	100.0%

	1982 144 Banks		1983 124 Banks	
Months Outstanding	Items	Percent	Items	Percent
0 - 1	71,448	23.7%	80,284	31.0%
1 - 2	67,413	22.3	56,241	21.7
2 - 4	71,833	23.8	62,379	24.1
4 - 6	41,749	13.8	37,819	14.6
Over 6	49,590	16.4	22,370	8.6
	-------	-----	-------	-----
Total	302,033	100.0%	259,093	100.0%

	1984 111 Banks		1985 126 Banks	
Months Outstanding	Items	Percent	Items	Percent
0 - 1	82,390	28.0%	86,296	37.8%
1 - 2	59,130	20.1	51,808	22.7
2 - 4	61,716	21.0	38,595	16.9
4 - 6	44,974	15.3	19,963	8.7
Over 6	46,082	15.7	31,715	13.9
	-------	-----	-------	-----
Total	294,292	100.0%	228,377	100.0%

Q77 = Q78 + Q79 + Q80 + Q81 + Q82

Table 23

Age Distribution of Outstanding Exception Items by the Microfilming Method (Average Reporting Banks)

Dollars Outstanding

After* Reader/Sorter Processing

	1982 Dollars	1983 Dollars	1984 Dollars	1985 Dollars	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	$ 833,657	$ 708,048	$1,869,983	$1,469,140	77%	56%	79%	68%
1- 2	85,793	338,247	246,674	206,902	8	27	10	10
2 - 4	130,929	153,908	148,092	111,978	12	12	6	5
4 - 6	19,152	54,361	62,876	94,405	2	4	3	5
Over 6	16,282	20,457	38,734	264,272	1	2	2	12
Total	$3,575,996	$1,085,813	$1,275,021	$2,146,697	100%	100%	100%	100%

Before* Reader/Sorter Processing

	1982 Dollars	1983 Dollars	1984 Dollars	1985 Dollars	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	$1,559,068	$ 154,374	$2,768,106	$7,638,587	80%	57%	50%	94%
1 - 2	8,883	37,354	1,423,674	224,610	10	14	26	3
2 - 4	17,660	37,879	609,875	104,215	6	14	11	1
4 - 6	5,513	13,124	345,278	94,632	2	5	6	1
Over 6	11,391	27,945	436,228	90,155	2	10	7	1
Total	$1,602,515	$ 270,676	$5,583,162	$8,152,200	100%	100%	100%	100%

During* Reader/Sorter Processing

	1982 Dollars	1983 Dollars	1984 Dollars	1985 Dollars	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	$3,554,375	$4,055,849	$5,338,299	$3,331,124	80%	81%	79%	67%
1 - 2	453,831	442,193	745,886	629,085	10	9	11	13
2 - 4	242,364	282,912	349,879	291,118	6	6	5	6
4- 6	96,090	132,812	171,550	289,898	2	3	2	6
Over 6	72,038	83,485	198,697	420,867	2	2	3	8
Total	$4,418,698	$4,998,251	$6,804,311	$4,921,937	100%	100%	100%	100%

*Criteria for inclusion in a group, i.e., After, Before, and During was changed in 1983 Survey.

Table 23 (Continued)

Age Distribution of Outstanding Exception Items by Microfilming Method (Average Reporting Banks)

Items Outstanding

After Reader/Sorter Processing

	1982 Items	1983 Items	1984 Items	1985 Items	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	669	435	940	613	64%	35%	32%	15%
1 - 2	236	355	458	880	23	28	16	22
2 - 4	68	181	682	517	7	15	23	13
4 - 6	36	147	300	538	3	12	10	13
Over 6	29	125	549	1470	3	10	19	37
	-----	-----	-----	-----	---	---	---	---
Total	1,038	1,243	2,929	4,018	100%	100%	100%	100%

Before Reader/Sorter Processing

	1982 Items	1983 Items	1984 Items	1985 Items	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	220	208	907	704	45%	32%	20%	29%
1 - 2	93	166	1,549	551	19	26	35	23
2 - 4	92	88	1,055	337	18	14	23	14
4 - 6	53	71	538	328	11	11	13	14
Over 6	33	111	415	491	7	7	9	20
	-----	-----	-----	-----	---	---	---	---
Total	491	644	4,509	2,411	100%	100%	100%	100%

During Reader/Sorter Processing

	1982 Items	1983 Items	1984 Items	1985 Items	1982 Percent	1983 Percent	1984 Percent	1985 Percent
0 - 1	494	675	730	703	26%	31%	28%	39%
1 - 2	467	471	532	409	25	22	20	23
2 - 4	517	530	552	309	28	24	21	17
4 - 6	281	320	408	153	15	15	15	8
Over 6	116	183	411	228	6	8	16	13
	-----	-----	-----	-----	---	---	---	---
Total	1,875	2,179	2,633	1,802	100%	100%	100%	100%

Table 24

A Comparison of Balancing Policy and Experience

	Balancing Procedures (Q83)					
	1980	1981	1982	1983	1984	1985
Always balance	4%	3%	3%	4%	2%	2%
Attempt to balance	85	85	80	78	85	82
Very seldom balance	11	12	17	18	13	16

	Exception Item Growth (Q84)					
	1980	1981	1982	1983	1984	1985
Grown	56%	49%	28%	30%	52%	48%
Remained the same	25	27	32	32	27	31
Decreased	19	24	40	38	21	21

	Adjustment Staff Size			
	141 Banks	1984	1985	Percent Gain or Loss
Grown	26%	515	615	+19.4%
Remained the same	60	768	772	0.5
Decreased	15	981	866	-11.7
	100%	2,264	2,253	-0.5%

Table 25

Transit Holdover by Area
(Percent of Total Transit Items)

Area	1980	1981	1982	1983	1984	1985
Boston	1.1%	0.2%	0.1%	0.04%	0.08%	0.11%
New York	2.5	2.4	2.6	4.97	3.29	0.51
Philadelphia	1.5	0.3	0.1	0.18	0.15	0.01
Pittsburgh	1.3	1.0	2.0	3.18	4.47	0.75
Washington, D.C.	0.9	0.7	0.4	0.16	0.22	0.37
Atlanta	2.9	5.4	2.0	1.34	0.33	0.76
Chicago	1.4	1.1	2.8	0.86	0.18	1.28
Cleveland	0.5	1.3	0.6	1.24	0.17	0.07
Detroit	0.7	0.4	9.6	3.61	1.15	0.52
Minneapolis/St. Paul	*	0.8	0.8	0.01	*	0.45
St. Louis	2.3	1.7	1.2	0.74	1.55	2.43
Dallas	1.0	6.0	4.6	0.07	0.44	0.28
Houston	3.3	2.4	2.4	0.42	0.09	0.13
Los Angeles	1.4	1.2	0.5	0.88	0.35	0.99
San Francisco	1.9	0.4	0.4	0.21	2.45	0.36
Denver	0.2	0.4	0.6	0.40	1.76	0.00
Total banks	170	152	169	138	124	141
Average	1.9%	1.4%	1.6%	1.19%	1.15%	0.65%
Average dollar value of item held over	$678	$781	$408	$2,129	$529	$718
Median dollar value of item held over	$551	$478	$413	$ 521	$519	$526

*No respondents.

Q11 / (Q10 + Q11) x 100

Table 26

Distribution of the Transit Holdover Rate
(Percent of Total Transit Items)

Rate	1980	1981	1982	1983	1984	1985
0% - 1%	112	105	127	114	100	125
1% - 2%	21	19	17	9	8	9
2% - 3%	13	5	7	4	6	2
3% - 4%	7	4	6	2	3	1
4% - 5%	3	7	0	4	2	0
5% - 10%	7	7	4	2	3	3
10% - 15%	2	2	4	1	0	1
15% - 20%	2	0	2	0	1	0
20% - 30%	3	1	0	1	0	0
Over 30%	0	2	2	1	1	0
	----	----	----	----	----	----
Total banks	170	152	169	138	124	141
Average	1.9%	1.4%	1.6%	1.2%	1.2%	0.7%
Median	0.3%	0.2%	0.2%	0.1%	0.1%	0.1%

$$\frac{Q11}{Q10 + Q11} \times 100$$

Table 27

Overall Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 300	15	6	3	1	2	4
300 - 400	31	14	12	8	3	3
400 - 500	24	20	16	13	9	6
500 - 750	88	37	53	39	31	48
750 - 1,000	*	22	30	41	36	36
1,000 - 1,250	*	4	13	17	21	28
Over 1,250	*	2	7	16	18	15
Total banks	158	105	134	135	120	140
Average	524.6	551.6	693.3	787.5	843.7	824.1
Median	522.7	609.8	692.6	802.9	1,092.9	868.5

*No comparable data collected.

$$\frac{\text{Q16}}{\text{Sum of Q47 through Q69}}$$

Table 28

Overall Labor Productivity by Area

Area	1980	1981	1982	1983	1984	1985
Boston	559.1	680.1	689.0	794.2	790.1	857.3
New York	551.6	536.8	592.2	552.2	591.6	497.4
Philadelphia	465.1	612.4	735.0	786.4	798.8	955.9
Pittsburgh	771.2	788.3	974.8	969.7	1,056.4	926.0
Washington, D.C.	565.5	690.7	769.7	885.3	930.8	813.7
Atlanta	567.9	723.7	658.3	821.4	883.5	765.4
Chicago	505.2	584.9	662.3	763.9	885.4	888.5
Cleveland	517.5	493.0	700.6	944.0	998.3	847.4
Detroit	488.3	456.4	702.1	601.4	553.6	655.0
Minneapolis/St. Paul	*	733.3	874.9	1,075.8	*	319.9
St. Louis	613.3	689.7	797.4	806.6	987.1	981.3
Dallas	602.3	739.7	755.4	905.4	911.3	827.3
Houston	462.2	486.7	909.9	843.3	990.4	799.2
Los Angeles	634.0	529.5	595.7	691.0	797.1	717.8
San Francisco	670.9	727.7	1,042.4	978.3	999.0	1,196.0
Denver	624.8	414.2	769.8	782.1	724.8	911.7
Total banks	158	105	134	135	120	140
Average	524.6	551.6	693.3	787.5	843.7	824.1
Median	522.7	609.8	692.6	802.9	866.8	868.5

*No respondents.

Q16

Sum of Q47 through Q69

Table 29

Distribution of Labor by Overall Labor Productivity

Checks per Man-Hour*	Number of Banks	Percent of Labor by Tasks** A	B	C	D	E	F	G	H	I
Under 300	3	24.5%	20.5%	10.6%	16.2%	6.4%	5.2%	4.1%	0.5%	17.8%
300 - 400	2	24.0	21.0	3.4	5.6	9.7	16.5	10.4	3.8	5.6
400 - 500	6	14.1	26.4	11.0	4.4	6.1	16.6	5.8	11.4	4.5
500 - 750	48	15.4	28.1	8.7	3.0	6.2	18.9	7.4	3.3	9.1
750 - 1,000	35	17.0	25.4	6.8	4.8	7.7	20.0	8.7	2.8	7.6
1,000 - 1,250	26	12.5	25.1	6.1	4.9	6.9	28.0	7.3	5.3	7.2
1,250 - 1,500	9	18.1	25.2	7.9	5.3	7.8	18.0	11.8	3.5	2.6
Over 1,500	3	13.4	28.1	16.1	3.8	9.8	20.2	9.3	4.1	2.2
Average, all banks 1985	134	15.9%	25.9%	8.0%	5.1%	7.0%	20.2%	7.6%	4.0%	8.2%
Average, all banks1984	120	14.7	27.1	7.4	5.6	7.7	22.3	7.0	3.1	7.6
Average, all banks 1983	135	14.3	27.5	7.6	4.9	7.0	21.8	7.3	3.2	6.4
Average, all banks 1982	134	15.7	25.4	7.3	4.3	7.0	23.1	7.4	1.8	8.0
Average, all banks 1981	105	17.2	28.8	5.7	4.0	6.8	21.3	6.5	1.6	8.1
Average, all banks 1980	158	18.3	26.2	4.5	4.5	6.9	22.7	6.6	3.2	7.0

$$\frac{\text{Q16}}{\text{Sum of Q47 through Q69}}$$

** Tasks

A. Data control balancing and correction	$\frac{\text{Q49 + Q50}}{\text{Sum of Q47 through Q69}}$ X100
B. Encoding operations	$\frac{\text{Q51 + Q52 + Q55 + Q56}}{\text{Sum of Q47 through Q69}}$ X100
C. Check receiving	$\frac{\text{Q53 + Q54}}{\text{Sum of Q47 through Q69}}$ X100
D. Reader/sorter operations	$\frac{\text{Q57 + Q58}}{\text{Sum of Q47 through Q69}}$ X100
E. Cash letter make-up and microfilming operations	$\frac{\text{Q59 + Q60 + Q61 + Q62}}{\text{Sum of Q47 through Q69}}$ X100
F. On-us processing and return item processing	$\frac{\text{Q63 + Q64 + Q67 + Q68}}{\text{Sum of Q47 through Q69}}$ X100
G. Exception item processing	$\frac{\text{Q47 + Q48}}{\text{Sum of Q47 through Q69}}$ X100
H. Bulk filing	$\frac{\text{Q65 + Q66}}{\text{Sum of Q47 through Q69}}$ X100
I. Nonofficer processing time not including 'A' through 'H' tasks	$\frac{\text{Q69}}{\text{Sum of Q47 through Q69}}$ X100

Table 30

Balancing and Correction Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 1,000	5	7	4	0	1	1
1,000 - 2,000	27	15	11	2	4	7
2,000 - 3,000	37	23	20	20	9	12
3,000 - 4,000	21	20	31	20	14	18
4,000 - 5,000	21	23	18	15	16	13
5,000 - 6,000	13	11	16	6	10	12
6,000 - 7,000	9	8	8	10	12	14
7,000 - 8,000	6	9	8	6	7	11
8,000 - 9,000	28	3	8	7	4	6
9,000 - 10,000	*	2	3	6	1	7
10,000 - 15,000	*	14	14	16	17	17
Over 15,000	*	12	19	19	20	16
Total banks	167	147	160	127	115	134
Average	2,880	3,218	4,651	9,181	5,890	5,305
Median	3,557	4,250	4,782	6,004	6,269	6,160

*No comparable data collected.

$$\frac{Q9}{Q49 + Q50}$$

Table 31

Encoding Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 600	19	12	9	7	5	7
600 - 700	15	14	6	4	9	7
700 - 800	26	17	18	8	10	10
800 - 900	27	34	15	16	12	8
900 - 1,000	27	21	25	13	13	18
1,000 - 1,100	51	13	17	20	12	15
1,100 - 1,200	*	13	20	19	15	20
1,200 - 1,300	*	5	11	16	12	9
1,300 - 1,400	*	3	9	10	10	8
1,400 - 1,500	*	6	9	6	6	7
Over 1,500	*	11	14	13	14	27
Total banks	165	149	153	132	118	136
Average	865	876	988	1,008	1,048	1,148
Median	879	881	1,012	1,089	1,070	1,117

*No comparable data collected.

$$\frac{Q3 + Q4 + Q5 + Q6}{Q51 + Q52 + Q55 + Q56}$$

Table 32

Encoding Labor Productivity for the Single-Pocket Machine

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 600	18	12	9	5	6	5
600 - 700	9	11	5	2	3	7
700 - 800	27	13	15	12	10	8
800 - 900	25	33	17	12	11	7
900 - 1,000	25	21	26	14	13	16
1,000 - 1,100	17	13	17	17	13	12
1,100 - 1,200	14	12	22	18	15	23
1,200 - 1,300	20	8	12	17	9	10
1,300 - 1,400	*	3	9	9	8	7
1,400 - 1,500	*	5	8	6	8	7
Over 1,500	*	12	14	12	15	27
Total banks	155	143	154	124	111	129
Average	864	920	1,003	1,043	1,085	1,109
Median	892	914	1,023	1,100	1,100	1,132

*No comparable data collected.

Q3 + Q4

Q51 + Q52

Table 33

Encoding Labor Productivity for the Multipocket Machine

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
0 - 100	3	3	3	2	3	2
100 - 200	6	2	3	4	3	3
200 - 300	4	2	4	5	6	4
300 - 400	5	2	4	9	6	8
400 - 500	6	9	3	2	6	5
500 - 600	9	3	6	3	2	3
600 - 700	6	3	4	2	4	2
700 - 800	7	10	7	4	5	8
800 - 900	7	7	7	7	2	1
900 - 1,000	4	4	7	6	4	4
1,000 - 1,100	1	2	4	1	1	2
1,100 - 1,200	2	2	4	2	2	1
Over 1,200	8	8	5	11	8	9
Total banks	68	57	61	58	52	52
Average	685	767	908	818	853	1,331
Median	616	728	764	758	620	700

$$\frac{Q5 + Q6}{Q55 + Q56}$$

Table 34

Items Encoded per Man-Hour by Percent of Pre-encoded Items

Percent of Incoming Items Already Encoded*	1980	1981	Number of Banks 1982	1983	1984	1985
80% - 100%	16	19	19	19	18	28
60% - 80%	40	38	45	36	29	43
40% - 60%	60	58	67	51	48	42
0% - 40%	49	34	28	25	23	24
Total banks	165	149	165	131	118	137

Percent of Incoming Items Already Encoded*	1980	Items Encoded per Man-Hour+ 1981	1982	1983	1984	1985
80% - 100%	776	819	1,068	906	810	1,121
60% - 80%	955	980	1,052	954	1,045	1,172
40% - 60%	1,041	1,413	1,046	1,026	1,151	1,309
0% - 40%	885	1,497	1,064	1,062	1,183	770
Average productivity	865	876	983	1,008	1,048	1,148

* $\frac{Q1 + Q2}{Q9} \times 100$

+ $\frac{Q3 + Q4 + Q5 + Q6}{Q51 + Q52 + Q55 + Q56}$

Table 35

Check-Receiving Productivity

	1980	1981	1982	1983	1984	1985
Under 5,000	41	27	30	14	9	15
5,000 - 10,000	44	30	34	31	24	28
10,000 - 15,000	34	21	31	27	21	32
15,000 - 20,000	11	30	22	17	23	14
20,000 - 25,000	12	9	12	11	13	8
25,000 - 30,000	3	7	10	9	7	9
Over 30,000	18	25	25	23	17	30
Total banks	163	149	164	132	114	136
Average	6,519	8,970	9,359	10,164	11,703	10,466
Median	9,113	14,331	12,331	13,780	15,699	14,022

$$\frac{Q9}{Q53 + Q54}$$

Table 36

Reader/Sorter Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 5,000	18	11	6	6	5	5
5,000 - 10,000	29	29	20	17	11	16
10,000 - 15,000	14	22	24	17	17	10
15,000 - 20,000	22	24	27	14	18	17
20,000 - 25,000	13	12	21	17	8	12
25,000 - 30,000	18	12	15	11	5	14
30,000 - 35,000	52	5	9	5	15	9
35,000 - 40,000	*	7	11	12	8	7
40,000 - 45,000	*	6	7	5	3	10
45,000 - 50,000	*	6	6	3	6	8
50,000 - 75,000	*	13	12	19	14	21
Over 75,000	*	5	6	6	6	9
Total banks	166	152	164	132	116	138
Average	11,740	13,044	15,734	15,516	15,059	16,013
Median	19,917	17,532	21,720	23,428	23,729	27,581

*No comparable data collected.

$$\frac{Q7}{Q57 + Q58}$$

Table 37

Cash Letter Makeup and Microfilming Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 2,000	5	6	3	3	3	3
2,000 - 3,000	10	15	6	4	2	6
3,000 - 4,000	10	11	12	10	5	6
4,000 - 5,000	18	11	15	8	7	5
5,000 - 6,000	12	12	17	15	10	14
6,000 - 7,000	12	14	9	12	13	10
7,000 - 8,000	13	8	17	10	6	16
8,000 - 9,000	10	7	19	9	8	13
9,000 - 10,000	13	11	6	13	6	8
10,000 - 11,000	*	*	9	9	7	9
11,000 - 12,000	64	15	7	5	8	6
12,000 - 15,000	*	6	17	10	12	12
15,000 - 20,000	*	9	7	10	10	9
Over 20,000	*	14	11	5	8	14
Total banks	167	139	155	123	105	131
Average	6,323	6,215	6,803	6,923	6,883	7,690
Median	8,204	7,097	7,919	7,927	8,638	8,401

*No comparable data collected.

$$\frac{Q10 + Q11 + Q20 + Q21}{Q59 + Q60 + Q61 + Q62}$$

Table 38

Cash Letter Makeup Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 2,000	8	7	4	3	2	2
2,000 - 4,000	28	30	24	16	9	12
4,000 - 6,000	29	26	34	21	23	21
6,000 - 8,000	23	20	26	25	10	25
8,000 - 10,000	24	19	22	22	21	21
10,000 - 12,000	15	13	18	16	12	15
12,000 - 15,000	10	8	17	7	7	17
15,000 - 20,000	32	11	7	11	14	7
Over 20,000	*	13	14	12	18	18
Total banks	169	147	166	133	116	138
Average	5,768	5,439	6,532	7,173	8,508	8,228
Median	7,718	6,733	7,659	8,161	9,059	8,710

*No comparable data collected.

$$\frac{Q10 + Q11}{Q59 + Q60}$$

Table 39

Microfilming Labor Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 2,000	28	23	23	29	23	29
2,000 - 4,000	14	19	22	13	11	16
4,000 - 6,000	12	14	16	8	9	9
6,000 - 8,000	11	15	4	9	7	7
8,000 - 10,000	14	7	11	4	5	9
10,000 - 12,000	11	11	8	5	4	4
12,000 - 15,000	14	8	9	7	8	8
15,000 - 18,000	39	3	7	4	1	2
18,000 - 21,000	*	5	5	2	0	2
21,000 - 30,000	*	5	9	4	2	4
30,000 - 50,000	*	4	2	5	5	2
Over 50,000	*	5	5	2	3	3
Total banks	143	119	121	92	78	95
Average	7,933	8,971	9,442	6,226	2,969	4,309
Median	8,924	6,639	5,869	4,610	4,988	4,234

*No comparable data collected.

$$\frac{Q20 + Q21}{Q61 + Q62}$$

Table 40

On-Us Processing Labor Productivity

Checks per Man-Hour	1983	1984	1985
Under 400	4	7	16
400 - 500	1	2	3
500 - 600	1	5	8
600 - 700	5	4	6
700 - 800	3	4	4
800 - 900	11	6	3
900 - 1,000	8	2	4
1,000 - 1,250	17	15	10
1,250 - 1,500	12	7	11
1,500 - 1,750	10	13	10
1,750 - 2,000	5	2	4
2,000 - 3,000	12	13	14
3,000 - 4,000	5	3	6
4,000 - 5,000	2	5	6
5,000 - 10,000	12	16	13
10,000 - 15,000	5	3	3
15,000 - 20,000	1	1	1
20,000 - 25,000	1	0	2
Over 25,000	1	1	6
Total banks	116	109	130
Average	1,359	1,350	1,389
Median	1,399	1,578	1,529

$$\frac{Q12 + Q13 + Q14}{Q63 + Q64}$$

Table 41

Percent of On-Us Items Received
and
On-Us Processing Labor Productivity

Percent of On-Us Items Received*	1983	1984	1985	Checks Processed per Man-Hour+ 1983	1984	1985
Under 10%	14	13	36	936	612	650
10% - 20%	32	30	29	1,216	1,419	708
20% - 30%	19	28	24	1,280	1,767	1.713
30% - 40%	25	16	17	2,618	1,944	2,537
40% - 50%	7	8	14	1,753	3,366	3,552
50% - 60%	12	10	7	984	1,003	3,258
60% - 70$	4	2	3	971	1,537	1,641
Over 70%	3	0	0	3,686	0	0
Total banks	116	107	130			
Average productivity				1,359	1,352	1,389

* $\frac{Q12 + Q13 + Q14}{Q16} \times 100$

+ Average within each percentage group.

$\frac{Q12 + Q13 + Q14}{Q63 + Q64}$

Table 42

Bulk Filing Labor Productivity

Checks per Man-Hour	1982	1983	1984	1985
Under 1,500	8	14	13	21
1,500 - 3,000	22	15	12	18
3,000 - 4,500	9	14	11	16
4,500 - 10,000	26	20	21	23
10,000 - 25,000	17	18	16	11
25,000 - 50,000	9	6	7	10
50,000 - 100,000	11	7	8	12
Over 100,000	6	2	5	7
Total banks	108	96	93	118
Average	5,959	3,915	4,467	4,198
Median	6,786	5,470	6,821	5,390

$$\frac{Q15}{Q65 + Q66}$$

Table 43

Exception and Return Item Processing

Items per Man-Hour	1980	1981	1982	1983	1984	1985
Under 10	17	13	15	9	9	7
10 - 15	19	24	23	17	10	18
15 - 20	27	21	22	12	16	21
20 - 25	23	18	19	22	16	17
25 - 30	20	13	20	16	17	21
30 - 35	16	13	9	15	14	9
35 - 40	8	13	13	6	6	6
40 - 45	10	3	9	5	4	9
45 - 50	5	3	6	7	4	6
50 - 100	13	10	16	15	16	19
Over 100	6	2	4	1	1	1
Total banks	164	133	156	125	113	134
Average	27	24	27	27	27	27
Median	24	22	25	26	26	27

$$\frac{Q18 + Q43 + Q44}{Q47 + Q48 + Q67 + Q68}$$

Table 44

Return Item Productivity

Items per Man-Hour	1980	1981	1982	1983	1984	1985
Under 15	15	14	15	10	9	4
15 - 20	4	8	7	4	6	6
20 - 25	14	10	13	10	8	13
25 - 30	17	10	8	10	5	14
30 - 35	10	13	5	6	14	10
35 - 40	8	13	12	9	7	14
40 - 45	9	5	6	9	13	7
45 - 50	8	6	8	9	4	9
50 - 65	52	19	29	20	15	22
65 - 80	29	15	14	13	11	10
80 - 100	*	13	11	9	10	10
100 - 120	*	1	10	6	6	2
120 - 200	*	7	6	7	6	9
Over 200	*	7	14	6	4	7
Total banks	166	141	158	128	118	137
Average	54	48	56	54	52	50
Median	47	44	54	49	44	46

*No comparable data collected.

$$\frac{Q18}{Q67 + Q68}$$

Table 45

Exception and Return Item Productivity by Rate Discovered

Number of Banks

Exception Item Rate per 100,000 Items Sent**	1980	1981	1982	1983	1984	1985
0 - 500	8	8	13	17	15	11
500 - 1,000	76	77	87	75	82	81
1,000 - 1,500	55	31	42	24	13	33
1,500 - 2,000	17	8	7	6	1	5
2,000 - 2,500	5	4	4	1	1	3
2,500 - 3,000	2	1	1	0	1	0
Over 3,000	0	4	1	2	0	1
Total banks	163	133	156	125	113	134

** $\frac{Q18 + Q43}{Q10} \times 100{,}000$

Table 45 (Continued)

Exception and Return Item Productivity by Rate Discovered

Exception Item Rate per 100,000 Items Sent**	Items Resolved per Man-Hour 1980	1981	1982	1983	1984	1985
0 - 500	29	12	13	14	16	14
500 - 1,000	27	23	30	24	27	24
1,000 - 1,500	33	41	32	35	32	37
1,500 - 2,000	35	35	43	28	33	33
2,000 - 2,500	78	35	28	46	132	55
2,500 - 3,000	39	39	40	*	*	*
Over 3,000	*	30	67	75	32	47
Average	26	24	27	27	27	27
Median	24	22	25	26	26	27

** $\frac{Q18 + Q43}{Q10} \times 100{,}000$

+ $\frac{Q18 + Q43 + Q44}{Q47 + Q48 + Q67 + Q68}$

* No respondents.

Table 46

Exception Item Productivity

Items per Man-Hour	1980	1981	1982	1983	1984	1985
0 - 2	55	41	54	38	26	31
2 - 3	30	23	30	22	18	15
3 - 4	18	21	16	18	12	18
4 - 5	11	8	10	6	10	21
5 - 10	29	23	32	29	28	33
10 - 15	6	9	13	10	11	12
15 - 20	4	4	2	1	5	2
Over 20	14	12	8	7	4	5
Total banks	167	141	165	131	114	137
Average	3	3	3	3	3	3
Median	3	3	3	3	4	4

$$\frac{Q43 + Q44}{Q47 + Q48}$$

Table 47

Reject Processing Productivity by Area

Area	1980	1981	1982	1983	1984	1985
Boston	346	577	400	422	452	448
New York	376	444	489	209	365	285
Philadelphia	397	549	441	372	376	600
Pittsburgh	737	737	720	387	360	248
Washington, D.C.	384	395	446	331	306	272
Atlanta	555	466	384	308	300	292
Chicago	355	433	322	313	483	242
Cleveland	282	287	280	159	159	199
Detroit	370	476	721	451	332	353
Minneapolis/St. Paul	*	479	626	244	*	220
St. Louis	439	494	325	295	365	263
Dallas	478	210	448	294	331	335
Houston	610	305	478	216	110	284
Los Angeles	963	327	938	346	430	536
San Francisco	365	371	239	178	311	337
Denver	641	518	355	145	348	560
Total banks	110	101	123	102	96	113
Average	308	248	276	260	325	319
Median	357	343	347	346	352	365

*No respondents.

Q99

Q100

Table 48

Reject Processing Productivity

Checks per Man-Hour	1980	1981	1982	1983	1984	1985
Under 100	6	10	11	7	5	8
100 - 200	20	15	19	15	16	18
200 - 300	19	16	21	17	19	17
300 - 400	16	17	19	24	16	18
400 - 500	16	11	19	12	10	10
500 - 600	10	7	10	7	14	10
600 - 700	5	4	6	6	6	6
700 - 800	18	5	2	1	2	8
800 - 900	*	4	3	2	1	5
900 - 1,000	*	5	3	1	1	3
Over 1,000	*	7	10	10	6	10
Total banks	110	101	123	102	96	113
Average	308	248	276	260	325	319
Median	357	343	347	346	352	365

*No comparable data collected.

$\frac{Q99}{Q100}$

Table 49

Reject Rate After Reader/Sorter High-Speed Reject Reentry by Area

Area	1980	1981	1982	1983	1984	1985
Boston	0.1%	0.2%	0.2%	0.2%	0.3%	0.3%
New York	1.4	0.8	0.6	0.7	0.4	0.2
Philadelphia	0.7	0.9	0.8	0.7	0.3	0.6
Pittsburgh	1.6	*	1.1	0.9	0.0	1.1
Washington, D.C.	1.0	0.4	0.6	0.4	0.2	0.5
Atlanta	1.0	0.9	1.1	0.6	0.3	0.7
Chicago	1.0	0.9	0.5	0.3	0.8	0.6
Cleveland	0.8	1.0	0.5	0.4	0.3	0.2
Detroit	0.4	0.1	0.3	0.2	0.4	0.7
Minneapolis/St. Paul	*	1.0	0.6	0.7	*	0.3
St. Louis	0.7	0.6	0.7	0.2	0.5	0.5
Dallas	*	0.9	1.0	0.8	1.1	0.8
Houston	0.5	1.1	0.8	0.4	0.6	0.0
Los Angeles	0.3	0.5	0.5	0.9	0.2	0.4
San Francisco	0.4	0.4	0.5	0.4	0.5	0.2
Denver	1.0	0.5	0.3	0.4	*	0.4
Total banks	68	56	77	58	49	60
Average	0.8%	0.8%	0.6%	0.5%	0.4%	0.5%
Median	0.7%	0.7%	0.5%	0.4%	0.3%	0.3%

*No respondents.

$$\frac{Q31}{Q7} \times 100$$

Table 50

Distribution of the Reject Rate After High-Speed Reject Reentry

Rate	1980	1981	1982	1983	1984	1985
0% - 0.1%	11	14	23	20	18	22
0.1% - 0.3%	14	4	6	8	8	12
0.3% - 0.5%	5	6	10	7	6	7
0.5% - 0.8%	7	8	9	10	10	8
0.8% - 1.0%	10	4	9	8	1	5
1.0% - 1.5%	8	14	12	4	5	4
1.5% - 2.0%	6	5	5	1	1	1
2.0% - 2.5%	5	1	1	0	0	1
2.5% - 3.0%	2	0	2	0	0	0
Over 3.0%	0	0	0	0	0	0
	----	----	----	----	----	----
Total banks	68	56	77	58	49	60
Average	0.8%	0.8%	0.6%	0.5%	0.4%	0.5%
Median	0.7%	0.7%	0.5%	0.4%	0.3%	0.3%

$$\frac{Q31}{Q7} \times 100$$

Table 51

Average Number of Rejects Reentered from the First-Pass by Area

Area	1981	1982	1983	1984	1985
Boston	23,382	13,117	32,737	31,752	29,478
New York	40,925	52,119	31,455	36,155	21,346
Philadelphia	28,703	18,805	20,967	19,317	28,323
Pittsburgh	26,103	22,980	19,500	23,117	33,974
Washington, D.C.	21,760	31,192	30,214	36,327	28,199
Atlanta	34,335	36,391	42,815	32,504	44,912
Chicago	39,407	45,454	28,456	31,419	31,951
Cleveland	28,956	33,944	47,714	31,167	35,071
Detroit	10,912	15,955	16,682	12,495	39,814
Minneapolis/St. Paul	6,069	5,529	10,715	*	6,684
St. Louis	21,710	25,322	28,792	28,587	30,405
Dallas	45,098	58,451	51,843	23,483	30,831
Houston	37,084	23,626	30,202	25,201	25,318
Los Angeles	36,448	101,599	56,374	45,404	26,534
San Francisco	94,456	50,270	67,097	125,256	155,560
Denver	31,318	38,351	22,728	24,312	16,564
Total banks	118	136	121	108	121

*No respondents.

Table 52

Average Number of Rejects Reentered from Subsequent Passes by Area

Area	1981	1982	1983	1984	1985
Boston	3,417	3,710	3,985	2,686	4,056
New York	263	2,154	682	706	671
Philadelphia	1,249	1,588	1,437	0	0
Pittsburgh	0	0	0	0	0
Washington, D.C.	886	400	810	419	1,827
Atlanta	5,157	1,628	870	851	3,288
Chicago	2,603	2,115	1,629	3,350	3,097
Cleveland	626	515	1,213	1,387	1,021
Detroit	0	0	0	0	0
Minneapolis/St. Paul	0	0	0	*	0
St. Louis	0	438	586	561	974
Dallas	0	172	0	875	1,532
Houston	545	55	0	0	1,968
Los Angeles	22	158	388	48	0
San Francisco	2,204	2,359	81	958	0
Denver	338	239	1,129	225	204
Total banks	118	135	121	108	121

*No respondents.

Table 53

Reject Reentry Productivity by Area

Area	1981	1982	1983	1984	1985
Boston	545	211	358	174	264
New York	489	464	170	350	375
Philadelphia	316	313	303	210	319
Pittsburgh	321	475	189	661	219
Washington, D.C.	264	397	278	283	281
Atlanta	339	365	321	167	342
Chicago	323	368	298	374	274
Cleveland	214	259	201	156	200
Detroit	314	611	410	242	191
Minneapolis/St. Paul	337	396	464	*	197
St. Louis	251	344	245	264	219
Dallas	275	319	257	203	314
Houston	444	319	100	93	205
Los Angeles	472	558	346	222	410
San Francisco	440	391	187	213	620
Denver	367	277	109	259	318
Total banks	110	134	115	107	118
Average	271	256	227	217	313
Median	293	304	285	286	333

*No respondents.

Q90

Q91

Table 54

Reject Reentry Productivity

Check per Man-Hour	1981	1982	1983	1984	1985
Under 100	16	18	10	16	8
100 - 200	18	20	30	22	21
200 - 300	23	27	20	17	20
300 - 400	15	26	17	23	25
400 - 500	17	18	9	9	17
500 - 600	7	4	10	7	8
600 - 700	3	6	3	6	11
700 - 800	6	5	6	3	3
800 - 900	1	2	3	2	0
900 - 1,000	1	2	4	1	0
Over 1,000	3	6	3	1	5
	----	----	----	----	----
Total banks	110	134	115	107	118
Average	271	256	227	217	313
Median	293	306	285	286	333

Q90

Q91

Table 55

Automated Reject Processing

Use of Automated Processing	1981	1982	1983	1984	1985
No	39%	28%	21%	16%	20%
Yes, exclusively	19	18	20	23	27
Yes, in combination with manual methods	42	54	59	61	53
If no, do you plan to acquire automated reject processing?					
No	11%	26%	38%	45%	31%
Yes	44	35	35	25	31
Undecided	45	39	27	30	39
If yes, automated reject processing is:					
On-line	63%	69%	70%	72%	80%
Off-line	37	31	30	28	20
Do you repair all fields, including the account number?					
No	16%	21%	14%	21%	17%
Yes	12	13	18	17	13
Yes, on selected banks	40	43	37	33	36
Yes, but only if operator intervention is not required	32	23	31	29	34

Table 56

Percent of Automated Reject Processing by Area

	Automated Reject Processing+					
Area	1980	1981	1982	1983	1984	1985
Boston	74%	70%	82%	94%	96%	92%
New York	43	59	75	85	82	90
Philadelphia	54	65	65	84	89	93
Pittsburgh	70	100	60	97	99	98
Washington, D.C.	44	56	63	84	84	89
Atlanta	61	78	74	71	81	88
Chicago	40	62	75	89	91	93
Cleveland	67	71	70	92	80	83
Detroit	60	50	57	50	100	78
Minneapolis/St. Paul	*	59	79	84	*	0
St. Louis	62	57	69	73	65	79
Dallas	96	53	77	81	92	85
Houston	62	81	50	69	67	83
Los Angeles	83	85	78	82	81	88
San Francisco	60	68	53	73	95	79
Denver	48	51	89	80	100	83
Total banks	115	104	123	108	97	115
Average	69	70	77	81	85	88
Median	74	83	85	92	95	95

* No respondents.

+ $\frac{Q97}{Q99} \times 100$

Table 56 (Continued)

Percent of Automated Reject Processing by Area

	Manual Reject Processing++					
Area	1980	1981	1982	1983	1984	1985
Boston	26%	30%	19%	7%	5%	8%
New York	57	41	25	15	18	10
Philadelphia	46	36	35	17	11	7
Pittsburgh	31	0	40	3	1	2
Washington, D.C.	56	44	37	16	16	11
Atlanta	39	22	26	29	19	13
Chicago	61	38	25	11	9	7
Cleveland	33	29	30	8	20	17
Detroit	40	50	43	50	0	22
Minneapolis/St. Paul	*	41	21	16	*	100
St. Louis	38	43	31	27	35	21
Dallas	4	47	23	19	8	15
Houston	36	19	50	31	33	17
Los Angeles	17	15	22	19	20	12
San Francisco	40	32	47	27	5	21
Denver	52	49	11	20	0	17
Total banks	115	104	123	108	97	115
Average	31	30	23	19	15	13
Median	26	17	15	9	5	6

* No respondents.

++ $\frac{Q98}{Q99} \times 100$

Table 57

Distribution of the Automated Reject Processing Rate

Rate	1980	1981	1982	1983	1984	1985
0% - 10%	25	22	23	15	9	15
10% - 20%	3	0	0	1	0	1
20% - 30%	6	4	0	2	1	2
30% - 40%	4	0	0	2	2	2
40% - 50%	2	7	7	1	1	0
50% - 60%	6	3	2	5	2	1
60% - 70%	8	5	8	2	4	6
70% - 80%	10	9	6	11	5	3
80% - 90%	10	11	24	13	11	16
90% - 100%	13	14	23	29	22	23
100%	28	29	30	27	40	45
Total banks	115	104	123	108	97	115
Average	69%	70%	77%	81%	85%	88%
Median	74	83	85	92	95	95

Q97
--- x 100
Q99

Table 58

Percent of Incoming Items Encoded

Area	1980	1981	1982	1983	1984	1985
Boston	52%	56%	56%	75%	72%	69%
New York	52	48	51	54	57	51
Philadelphia	45	49	54	64	59	66
Pittsburgh	40	50	51	60	70	69
Washington, D.C.	44	48	52	56	52	54
Atlanta	51	56	55	56	60	53
Chicago	69	73	75	83	84	83
Cleveland	56	51	53	53	59	62
Detroit	43	38	43	52	57	64
Minneapolis/St. Paul	*	55	74	80	*	23
St. Louis	70	70	72	75	79	81
Dallas	77	71	72	87	83	80
Houston	69	60	74	86	88	82
Los Angeles	36	32	38	40	44	50
San Francisco	47	44	51	78	80	62
Denver	67	58	64	64	60	62
Total banks	170	157	170	138	124	141
Average	57%	57%	63%	65%	67%	64%
Median					54%	59%

*No respondents.

$$\frac{Q1 + Q2}{Q9} \times 100$$

Table 59

Percent of Supervisory Time to Clerical Man-Hours

Task	1980	1981	1982	1983	1984	1985
Processing of exception items (Q48/Q47) x 100	14%	14%	14%	14%	16%	15%
Data control (Q50/Q49) x 100	13	12	14	13	11	12
Encoding $\frac{(Q52 + Q56)}{(Q51 + Q55)}$ x 100	12	9	12	11	10	10
Check receiving (Q54/Q53) x 100	12	13	14	13	13	14
Reader/Sorter (Q58/Q57) x 100	15	19	23	18	17	33
Cash letter make-up (Q60/Q59) x 100	14	14	15	15	14	15
Microfilm (Q62/Q61) x 100	6	11	13	7	12	10
Paying and filing (Q64/Q63) x 100	8	8	10	8	7	8
Bulk filing (Q66/Q65) x 100	11	13	14	14	15	13
Return items (Q68/Q67) x 100	13	12	11	13	12	13
Total banks	158	106	134	136	120	140
Combined average	12%	11%	13%	12%	11%	13%

$$\frac{Q48 + Q50 + Q52 + Q54 + Q56 + Q58 + Q60 + Q62 + Q64 + Q66 + Q68}{Q47 + Q49 + Q51 + Q53 + Q55 + Q57 + Q59 + Q61 + Q63 + Q65 + Q67} \times 100$$

Table 60

Percent of On-Us Items

Area	1980	1981#	1982	1983	1984	1985
Boston	47%		42%	42%	41%	41%
New York	52		54	48	44	52
Philadelphia	51		48	38	36	34
Pittsburgh	58		62	50	40	40
Washington, D.C.	39		49	53	48	50
Atlanta	44		46	56	41	47
Chicago	30		27	25	24	22
Cleveland	47		49	44	48	47
Detroit	41		53	43	42	36
Minneapolis/St. Paul	*		27	35	*	20
St. Louis	24		23	25	22	20
Dallas	23		31	23	29	29
Houston	28		35	24	24	23
Los Angeles	68		52	50	45	38
San Francisco	59		65	57	55	58
Denver	44		41	34	53	36
Total banks	170		165	138	123	141
Average	44%		48%	45%	42%	41%
Median					48%	45%

*No respondents.

#Data not available.

$$\frac{Q12 + Q13 + Q14 + Q15}{Q16} \times 100$$

Table 61

Percent of Payable-Through Drafts

Area	1980	1981#	1982	1983	1984	1985
Boston	8.5%		9.1%	23.1%	20.1%	17.1%
New York	3.2		1.1	5.3	5.6	0.9
Philadelphia	1.7		1.1	1.0	1.0	0.5
Pittsburgh	0.3		0.3	0.4	0.6	0.5
Washington, D.C.	14.9		2.5	4.8	4.7	3.1
Atlanta	1.3		2.3	2.0	1.2	1.0
Chicago	7.2		5.5	4.1	5.2	4.4
Cleveland	1.6		9.7	0.9	0.7	0.7
Detroit	0.5		0.3	0.6	3.1	0.9
Minneapolis/St. Paul	*		8.2	5.9	*	0.0
St. Louis	5.3		14.3	4.9	11.7	9.5
Dallas	2.4		2.0	2.4	1.0	1.1
Houston	2.4		1.6	0.7	0.4	0.6
Los Angeles	2.6		1.4	1.2	0.9	1.5
San Francisco	2.4		0.7	0.6	0.7	0.4
Denver	4.8		8.1	16.2	12.9	6.2
Total banks	169		164	138	123	140
Average	5.2%		2.4%	3.5%	3.7%	2.7%
Median					0.5%	0.3%

*No respondents.

#Data not available.

$$\frac{Q14}{Q12 + Q13 + Q14 + Q15} \times 100$$

Table 62

Forms of Check Truncation

Area	Truncation at the Bank of First Deposit					Check Safekeeping at Payor Bank				
	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985
Boston						0	1	1	1	3
New York						5	4	3	3	3
Philadelphia						5	5	4	3	2
Pittsburgh						1	1	0	0	0
Washington, D.C.						2	2	2	3	2
Atlanta						3	6	3	2	4
Chicago			NO ACTIVITY			3	4	2	3	4
Cleveland			TO REPORT			1	3	2	2	2
Detroit			AT THIS			0	1	2	2	1
Minneapolis/St. Paul			TIME			3	1	2	0	0
St. Louis						2	0	2	3	2
Dallas						1	1	1	1	3
Houston						0	1	0	2	0
Los Angeles						2	3	0	0	0
San Francisco						2	3	0	2	0
Denver						2	2	1	0	0
Total banks						32	38	25	27	26

Check Safekeeping (in thousands)

	1982	1983	1984	1985
Total Items	4,916	3,191	3,726*	2,172
Average Items/Bank	129	128	87	84
Total Dollars	$1,906,901	$1,543,266	$1,244,060	$1,670,359
Average Dollars/Bank	63,563	61,731	46,076	64,245

*Includes banks that reported items only.

Table 62 (Continued)

Forms of Check Truncation

Area	Cooperative Check Truncation 1982	1983	1984	1985	Electronic Check Presentment 1982	1983	1984	1985
Boston	1	0	0	1	1	0	0	2
New York	3	3	2	1	1	1	1	1
Philadelphia	0	0	0	0	1	0	1	1
Pittsburgh	0	0	0	0	2	2	1	2
Washington, D.C.	0	0	0	0	1	0	0	1
Atlanta	1	0	0	0	0	0	0	3
Chicago	2	2	2	2	3	2	2	2
Cleveland	1	1	0	1	1	1	2	1
Detroit	0	0	0	0	0	0	0	0
Minneapolis/St. Paul	0	0	*	1	0	0	0	0
St. Louis	1	1	0	0	0	0	0	1
Dallas	0	0	0	0	1	1	0	1
Houston	0	0	0	0	0	0	0	0
Los Angeles	1	1	0	0	0	1	0	0
San Francisco	0	0	0	0	1	2	0	0
Denver	0	0	0	0	0	1	1	2
Total banks	10	8	4	6	12	11	8	17

Cooperative Check Truncation
(in Whole Units)

	1982	1983	1984	1985
Total Items	2,258	1,682	949	308,762
Average Items/Bank	226	210	237	51,460
Total Dollars	$484,289	$289,644	$144,692	$125,261,512
Average Dollars/Bank	53,810	36,206	36,173	20,876,919

Electronic Check Presentment
(in Thousands)

	1982	1983	1984	1985
Total Items	53	319	244	833
Average Items/Bank	4	29	30	49
Total Dollars	$184,478	$265,175	$154,461	$518,802
Average Dollars/Bank	15,373	24,107	19,308	30,518

*No data available.

Table 62 (Continued)

Forms of Check Truncation

Data Processing Services

Area	1982	1983	1984	1985
Boston	0	0	1	1
New York	0	1	1	0
Philadelphia	1	0	0	0
Pittsburgh	0	1	0	1
Washington, D.C.	1	2	1	1
Atlanta	0	1	1	3
Chicago	0	0	0	0
Cleveland	0	1	1	1
Detroit	1	1	1	1
Minneapolis/St. Paul	0	1	0	0
St. Louis	0	0	2	1
Dallas	0	0	1	0
Houston	0	0	0	0
Los Angeles	0	0	0	1
San Francisco	0	0	0	0
Denver	2	2	1	2
Total banks	5	10	10	12

Data Processing Services
(in Thousands)

	1982	1983	1984	1985
Total Items	1,476	7,865	7,418	2,052
Average Items/Bank	246	736	742	171
Total Dollars	$61,109	$734,325	$993,929	$219,183
Average Dollars/Bank	12,222	73,432	99,393	18,265

APPENDIX C
1985 SURVEY QUESTIONNAIRE

Region ______ Bank No. ______
Date ______
Bank Name ______

FOR BAI USE ONLY
To Data Entry ______ Re-entry: ______
From Data Entry ______ Received: ______
Verified ______ Verified: ______

1985
Check Collection Performance Measurement Survey

Bank Administration Institute
AN OPERATIONS & TECHNOLOGY GROUP PROJECT

INSTRUCTIONS

- Please report all data for the period beginning Monday, September 16, 1985, and ending Saturday, September 21, 1985. Place the appropriate date in the space provided at the top of each column in Section I.
- The Outstanding Exception Items, Section VIII, and the Comments, Section XII, should be completed at the end of the survey period.
- Please report data pertaining to your domestic banking operations, including branches, if applicable.
- Since you may be unable to answer all questions, please respond with "N.A." if the question does not apply to your bank's operation, or with a "zero" where appropriate.
- Please read all definitions before completing the survey.
- Mail the completed survey booklet to:

  William C. Fisher
  Principal Research Manager
  Bank Administration Institute
  60 Gould Center
  Rolling Meadows, Illinois 60008
- If you have any questions, please call William C. Fisher, Principal Research Manager, at (312) 228-6200.

BANK ADMINISTRATION INSTITUTE

Check Collection Performance Measurement Survey
AN OPERATIONS & TECHNOLOGY GROUP PROJECT

Date ____________

Bank Name ____________

Street Address ____________

City ____________ State ____________ Zip ____________

Name ____________ Title ____________
(of person to be contacted about survey date)

Address ____________ Phone ____________
(if different from above)

Name ____________ Title ____________
(of person to whom completed survey is to be returned, if different from above)

	NUMBER OF ACCOUNTS
DDA	
Savings	
Money Market	
NOW	
Super NOW	

Number of Reader/Sorters	
Number of Proof Machines	
Single Pocket	
Multiple Pocket	

Please report all actual counts. Do *NOT* round off

DATA COLLECTION FORM

INCOMING WORK includes the check processing items received from the Federal Reserve, nonlocal banks, local banks and items included in all deposits made in your bank. Do *not* include the DDA items you process for other banks when you provide the accounting service on a fee basis. Do *not* include extra services performed over and above the check processing for lock box deposits, credit cards, preauthorized payments, account reconcilement, or wire transfer.

ITEMS consist of cashed and deposited checks, deposit tickets, control tickets, and other items that are normally processed commingled with checks on proof and/or encoding equipment. For batches use standard estimating techniques to determine item count.

I. INCOMING WORK

QUESTION	Question Relationship	Monday Date ____	Tuesday Date ____	Wednesday Date ____	Thursday Date ____	Friday Date ____	Saturday Date ____	WEEKLY TOTAL
1. Number of amount encoded items received from other banks and customers (who do their own encoding) sent to the reader/sorter.	—							1.
2. Number of amount encoded items received from other banks and customers (who do their own encoding) *NOT* sent to the reader/sorter.	—							2.
3. Number of items your bank encoded on single-pocket proof machines sent to the reader/sorter	—							3.
4. Number of items your bank encoded on single-pocket proof machines *NOT* sent to the reader/sorter.	—							4.
5. Number of items your bank encoded on multi-pocket proof machines sent to the reader/sorter.	—							5.
6. Number of items your bank encoded on multi-pocket proof machines *NOT* sent to the reader/sorter.	—							6.
7. Number of first-pass items processed on the reader/sorter.	1+3+5=7							7.
8. Number of items that were *NOT* processed by the reader/sorter.	2+4+6=8							8.
9. Number of items received by your bank.	7+8=9							9.

Please report all actual counts. Do not round off.

OUTGOING WORK is the disposition of all items you received and processed today.

TRANSIT ITEMS are the items you processed both high speed and low speed that were "on-others."

TRANSIT HOLDOVERS—items received by your bank prior to a deadline but which were not processed by high-or-low-speed systems in time to be sent for collection at that deadline. These would result in a loss of float to the bank but not to its customer. Do not add today's holdover items to the next day's count.

ON-US ITEMS—those items drawn on your bank; includes all types of checking accounts, cashier checks, deposit tickets, and control tickets.

ON-US ITEMS HELD OVER—items received by your bank that were not processed in time to be posted to your accounts on the day they were received.

BULK FILE ITEMS—those items stored in bundles according to date paid within the statement cycle.

II. OUTGOING WORK

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
10. Total number of transit items (on others) sent.	—							10.
11. Total number of transit holdover (on other) items.	—							11.
12. Total number of on-us items paid and filed (from previous day's incoming work).	—							12.
13. Total number of on-us items held over.	—							13.
14. Total number of payable-thru drafts processed.	—							14.
15. Total number of items bulk filed.	—							15.
16. Total number of items processed today.	10+11+12+ 13+14+15 =16							16.
17. Total dollar value of items in No. 11 (in dollars, no cents)	—	$	$	$	$	$	$	$ 17.

III. TRANSIT RETURNS

TRANSIT RETURN—items returned today for any reason that were originally sent out as transit items from this bank.

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
18. Total number of return items today.	—							18.
19. Total dollar value of items in No. 18 (in dollars, no cents)	—	$	$	$	$	$	$	$ 19.

Please report all actual counts.
Do *not* round off.

ITEMS MICROFILMED—total count of all check processing items filmed today.

IV. ITEMS MICROFILMED

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
20. Total number of items filmed prior to reader/sorter processing.	—							20.
21. Total number of items filmed after reader/sorter processing.	—							21.
22. Total number of items filmed during reader/sorter processing.	—							22.
23. Total number of items microfilmed today.	20+21+22 =23							23.

REJECTS—are items rejected for any reason on the first pass through a MICR reader/sorter.

HIGH-SPEED REJECT REENTRY—is the recapture of items rejected for any reason on the first pass through a MICR reader/sorter by repassing the items.

V. REJECTS

QUESTION	Question Relationship	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
24. Rejects due to transit number only.	—							24.
25. Rejects due to account number only.	—							25.
26. Rejects due to dollar amount only.	—							26.
27. Rejects due to serial number only.	—							27.
28. Rejects due to trancode only.	—							28.
29. Rejects due to other reasons (unknown or multiple reasons).	—							29.
30. Total number of first-pass MICR rejects before high-speed reject reentry.	24+25+26 +27+28+29 =30							30.
31. Total number of first-pass MICR rejects remaining after high-speed reject reentry.	—							31.

32. Do you repair rejected items before high-speed reject reentry? (circle one) 1 No 2 Yes

EXCEPTION ITEMS—items or notification of items (such as debits, credits or inquiries) that may require reconcilement with other banks.

MISSENDS—items you missent or received from other banks that did not belong to you.

MISCODES (Encoding Errors)—dollar amount of miscoded items you sent or received from other banks.

LISTING ERRORS (Incorrectly Charged)—items listed for an amount different from the written amount that you sent or received from other banks.

FREE—items received but not listed on incoming cash letters. (Enclosed not listed.)

LOST—items listed on the incoming cash letter but not received. (Listed not enclosed.)

VI. EXCEPTION ITEMS

QUESTION	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		WEEKLY TOTAL	
	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved	Discovered	Resolved
33./34. Missends													33.	34.
35./36. Miscodes (Encoding Errors)													35.	36.
37./38. Listing Errors (Incorrectly Charged)													37.	38.
39./40. Free Items													39.	40.
41./42. Lost Items													41.	42.
43./44. Total exception items today 33+35+37+39+41=43 34+36+38+40+42=44	43.	44.	43.	44.	43.	44	43.	44.	43.	44.	43.	44.	43.	44.
45. Total dollar value of items in No. 43. (No Cents)	$		$		$		$		$		$		$ 45.	
46. Total dollar value of items in No. 44. (No Cents)	$		$		$		$		$		$		$ 46.	

LABOR MAN-HOURS—number of clerical and supervisory man-hours worked to complete each labor category listed. Separate estimated production from supervisory man-hours when appropriate for a working supervisor. Include general force man-hours used in appropriate labor categories listed.

MAN-HOURS—productive hours, not time card hours, spent by department employees in completing the following tasks.

EXCEPTION ITEM MAN-HOURS—number of man-hours spent in discovering/resolving exception items for the calendar day.

PREPARATION MAN-HOURS—number of man-hours spent in receiving, batching, performing quality control, and preproving incoming deposits.

ENCODING OPERATOR MAN-HOURS—number of man-hours spent encoding the items received by your bank that were not encoded.

READER/SORTER OPERATOR MAN-HOURS—number of man-hours spent processing first pass items on the reader/sorter.

MICROFILM OPERATOR MAN-HOURS—number of man-hours spent microfilming the check processing items.

DATA CONTROL MAN-HOURS—consists of making MICR corrections or substitutions, preparing other entries for high-speed processing, controlling the movement of batches of items into and out of high-speed processing areas, balancing the transit and DDA entry runs, and preparing of daily settlement figures for departments involved in processing checks.

RETURN MAN-HOURS—number of man-hours spent in processing items returned to your bank that you had originally sent out as "on-others" items.

PAYING AND FILING MAN-HOURS—consists of processing "on-us" items, including the capture of MICR data preparing daily transaction files, updating customer master files, sorting paper documents, statement printing, management reports, verification of signature, date holds, stop payments, check filing, and statement rendering.

BULK FILING PRODUCTIVITY—number of man-hours spent in the capture of "on-us" MICR data, preparing daily transaction files, updating customer master files, cycle sorting daily "on-us" items for storage, retrieving and fine sorting cycle-to-date paper items, verifying stop payments, date holds and suspects, statement printing, and statement rendering.

CASH LETTER MAKE-UP MAN-HOURS—consists of processing outgoing ("on—others") items on computer and/or reader/sorter equipment, including the printing of cash letters, the fine sorting of items by destination, and the assemply and dispatch of these items, including any manual processing of quick kills and reader/sorter rejects.

VII. LABOR MAN-HOURS

QUESTION	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		WEEKLY TOTAL	
	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory
47./48. Total number of nonofficer man-hours to process the exception items in Nos. 43 and 44.													47.	48.
49./50. Total data control man-hours to process the items in No. 9.													49.	50.
51./52. Total single-pocket encoding operator man-hours to process the items in Nos. 3 and 4.													51.	52.
53./54. Total preparation man-hours to process the items in No. 9.													53.	54.
55./56. Total multipocket encoding operator man-hours to process the items in Nos. 5 and 6.													55.	56.
57./58. Total reader/sorter man-hours to process the items in No. 7.													57.	58.
59./60. Total operator man-hours for cash letter makeup in Nos. 10 and 11.													59.	60.
61./62. Total microfilm operator man-hours to process the items in Nos. 20 and 21.													61.	62.

VII. LABOR MAN-HOURS (continued)

QUESTION	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		WEEKLY TOTAL	
	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory	Clerical	Supervisory
63./64. Total paying and filing man-hours to process the items in Nos. 12, 13, and 14.													**63.**	**64.**
65./66. Total bulk filing man-hours to process the items in No. 15.													**65.**	**66.**
67./68. Total man-hours to process return items in No. 18.													**67.**	**68.**
69. All other nonofficer man-hours used in check processing not reported in Nos. 47 to 68.	Hours Description Hours Description Hours Description **69.** Total		Hours Description Hours Description Hours Description **69.** Total		Hours Description Hours Description Hours Description **69.** Total		Hours Description Hours Description Hours Description **69.** Total		Hours Description Hours Description Hours Description **69.** Total		Hours Description Hours Description Hours Description **69.** Total		**69.**	
									70. Total of questions 47 to 69				**70.** Grand Total	

PLEASE COMPLETE THE FOLLOWING AT THE END OF THE WEEK

VIII. OUTSTANDING EXCEPTION ITEMS

NOTE: In order to obtain an accurate description of total exception dollars, please report the summation of dollar value for all debit and credit items outstanding. For example, if there are only two items over six months outstanding to report, a debit for $100 and a credit for $100, enter $200 on line 76 and enter 2 on line 82. If this is not possible, complete this section with "NA."

Total of Debit and Credit Outstanding Transit Exception Items	Part of Total Exception Items (Debit and Credit) That Have Been Outstanding for:				
	1 Month or Less	1-2 Months	2-4 Months	4-6 Months	Over 6 Months
71. $ ______ Amount	72. $ ______ Amount	73. $ ______ Amount	74. $ ______ Amount	75. $ ______ Amount	76. $ ______ Amount
77. ______ Items	78. ______ Items	79. ______ Items	80. ______ Items	81. ______ Items	82. ______ Items

Note: 71=72+73+74+75+76
77=78+79+80+81+82

83. Generally, our bank would: (circle one)

Always balance before items leave the bank, even if it means missing a transit deadline. 1

Attempt to balance before the items leave the bank, but will make a transit deadline even if balancing is incomplete. 2

Very seldom balance before the items leave the bank to make a transit deadline. 3

84. Our bank's experience over the last year indicates that exception items have: (circle one)

Why?

Grown **1** ______________________

Remained about the same **2** ______________________

Decreased **3** ______________________

85. The staff responsible for making adjustments and reconciliations over the last year has:

*Number of People**	1984	1985
Grown **1**	86.	87.
Remained about the same **2**		
Decreased **3**		

**Number of full-time equivalent people.*
Express part-time people as fractional of full-time people.

NOTE: The productivity figures reported in this section should have been reported in the appropriate categories of earlier sections of the survey. This section should be completed if your bank utilizes on-line reject reentry techniques.

ON-LINE REJECT REENTRY—processing of items rejected from all first pass and subsequent passes of the MICR reader/sorter, using CRT or other automated devices to merge reject data directly to the MICR capture system.

ON-LINE REJECT REENTRY MAN-HOURS—making MICR corrections/substitutions through CRT or other automated device, controlling the movement of batches of items into and out of the high-speed processing job stream, balancing the transit and DDA reports, both first and subsequent passes, and providing daily settlement figures for all appropriate departments.

IX. ON-LINE REJECT REENTRY

QUESTION	Question Relationship	Weekly Total
88. Total number of reject items reentered on-line from first passes.	—	88.
89. Total number of reject items reentered on-line from subsequent passes.	—	89.
90. Total number of reject items reentered.	88+89=90	90.
91. Total man-hours to reenter reject items in No. 90.	—	91.

92. Do you repair rejected items that are reentered on-line from first or subsequent passes? (circle one) 1. No 2. Yes

X. AUTOMATED REJECT PROCESSING

NOTE: The productivity figures reported in this section should have been reported in the appropriate categories of earlier sections of the survey. This section should be completed if your bank utilizes a system of automated processing of reject items.

AUTOMATED REJECT PROCESSING—processing of all nonmachinable items, including items rejected by the MICR reader/sorter, on *both first pass and subsequent passes*, using automated equipment for repair and data capture.

AUTOMATED REJECT PROCESSING MAN-HOURS—preparing reject items for processing (including attaching strips), processing the rejects, and balancing output.

93. Is your bank using automated reject processing? (circle one)

1. No **2.** Yes, exclusively **3.** Yes, in combination with manual methods

94. If not, does your bank plan to acquire automated reject processing capability? (circle one)

1. No **2.** Yes **3.** Undecided

95. If your bank uses automated reject processing, is it accomplished? (circle one)

1. On-line? **2.** Off-line?

96. If your bank uses automated reject processing, do you repair all fields, including account number? (circle one)

1. No **2.** Yes **3.** Yes, on selected banks **4.** Yes, but only if operator intervention is not required.

QUESTION	Question Relationship	Weekly Total
97. Total number of all rejects processed through automated reject systems	—	**97.**
98. Total number of all rejects processed through manual reject systems.	—	**98.**
99. Total number of MICR rejects processed.	97+98=99	**99.**
100. Total man-hours used to process reject items in No. 99.	—	**100.**

TRUNCATION AT THE BANK OF FIRST DEPOSIT—check flow is truncated at the bank of first deposit since payment information is transmitted by terminal entry to the bank's accounting system.

CHECK SAFEKEEPING AT PAYOR BANK—check flow is truncated after high-speed processing by the payor bank. Checks are not returned to customers, although check payment information is contained in a descriptive statement. Efficient item retrieval and image processing functions allow customer access to these items.

COOPERATIVE CHECK TRUNCATION—check flow is truncated after high-speed processing by the bank of first deposit. Payment information is forwarded to the payor bank by alternative means; for example, through the ACH (Participants in the National Association for Check Safekeeping would report activity under this category.)

ELECTRONIC CHECK PRESENTMENT—check flow is not truncated, however, payment information is transmitted by electronic means to the payor bank, where checks are delivered later.

DATA PROCESSING SERVICE TRUNCATION—item flow is truncated at the bank providing safekeeping and data processing services, particularly share drafts or NOW drafts, for other financial institutions.

XI. CHECK TRUNCATION

QUESTION	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	WEEKLY TOTAL
101. Total number of on-us items truncated at the bank of first deposit.							101.
102. Total number of on-us items for safekeeping at payor bank.							102.
103. Total number of transit items (on-others) truncated in cooperative program.							103.
104. Total number of transit items (on-others) transmitted for electronic check presentment.							104.
105. Total number of items (on-others) truncated as a part of data processing services provided.							105.
106. Total dollar value of items in No. 101.							106.
107. Total dollar value of items in No. 102.							107.
108. Total dollar value of items in No. 103.							108.
109. Total dollar value of items in No. 104.							109.
110. Total dollar value of items in No. 105.							110.

XII. COMMENTS

NOTE: The results of past BAI Check Collection Surveys have contained appendices devoted to commentary from the nation's check processing professionals. Please provide your comments so that this valuable forum can continue. How have conditions changed from last year? Attach a separate sheet if you need more space.

Personnel (Training and Turnover) ______

Transportation ______

Rejects (Rates and Handling) ______

Outstanding Exception Items ______

Returns and Adjustments ______

(over)

Automated Reject Processing

Equipment and Systems Problems

Security

Regulatory Impacts

Check Truncation (Safekeeping and Non-return)

Microcomputer Applications

Miscellaneous

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